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[ORIGINAL COMMUNICATION.]

INK FOR TYPE-WRITER RIBBONS.

BY ISIDOR FURST.

EVERY one who is in the habit of using the type-writer has probably felt the inconvenience of sending the ribbon to be re-inked, not to speak of the likelihood of receiving in return for a new ribbon an old one, all worn out and good for nothing. Hence the question is often asked of scientific periodicals, How should the ribbons be re-inked?

The writer has passed through the same experience, and has tried several of the directions given in reply to the above question, with the uniform result of spoiling a good deal of material, in the shape of ribbons, paper, chemicals, etc., besides wasting much valuable time. Having made a number of experiments in this direction, I beg to submit the result to the readers of the AMERICAN DRUGGIST.

The requirements of type-writer ink are: When applied to the ribbon, it should dry sufficiently so as not to stain the paper which it touches, remain soft enough to print clearly wherever the ribbon is struck by the type, and contain enough coloring material to make the ribbon last a long time without re-inking. Two kinds of ribbon are supplied by the manufacturers: the "black record," the coloring matter of which consists of carbon and is permanent; and the "copying" which contains aniline colors, gives print which can be copied in an ordinary copying press, but is liable to fade in course of time.

Black Record Ink.—Take vaseline (petrolatum) of high boiling point, melt it on a water bath or slow fire, and incorporate by constant stirring as much lampblack (or powdered drop black) as it will take up without becoming granular. If the fat remains in excess, the print is liable to have a greasy outline; if the color is in excess, the print will not be clear. I am unable to give the proportions more definitely, as I have not made ink enough for manufacturing purposes, but no difficulty will be found in practice. Remove the mixture from the fire, and while it is cooling mix equal parts of petroleum benzin and rectified oil of turpentine,* in which dissolve the fatty ink, introduced in small portions, by constant agitation. The volatile solvents should be in such quantity that the fluid ink is of the consistence of fresh oil paint. One secret of success lies in the proper application of the ink to the ribbon. Wind the ribbon on a piece of cardboard, spread on a table several layers of newspaper, then unwind the ribbon in such lengths as may be most convenient, and lay it flat on the paper. Apply the ink, after agitation, by means of a soft brush, and rub it well into the interstices of the ribbon with a stiff tooth-brush. Hardly any ink should remain visible on the surface.

For *blue* "record" ink, Prussian blue may be substituted for the lampblack.

Ribbons Charged with Aniline Colors.—Take about three ounces of water, dissolve in it about a quarter of an ounce of transparent glycerin soap in fine shavings, add one ounce of glycerin, heat the mixture to about 120° F., remove from the fire, and add one-half ounce of the desired aniline color, with constant agitation. This ink can be painted on the ribbon with a soft brush and needs no tooth-brush to rub it in. Nor need the ribbon be taken from the machine in this instance, but the ink can be applied as the ribbon is wound from one spool to the other. If applied hot, it will dry quickly enough on the ribbon. All inks containing glycerin are more or less hygroscopic, and the ingredients may have to be varied somewhat in quantity, according to the season. For instance, in stove-heated rooms in winter, the air is generally so dry that less soap will be required, while in summer more soap may be needed to give the ink sufficient body.

In conclusion I beg to remark that I do not claim that the processes here given furnish the best results, but they are superior to any I have seen recommended elsewhere. If any of your readers can suggest anything better, I should be happy to try again and let you know the result.

NEW YORK, April 2d, 1886.

* Benzin alone evaporates too quickly, turpentine too slowly; the mixture of the two has answered best in my hands.

[ORIGINAL COMMUNICATION.]

HOPS AS A MYDRIATIC.

ON page 70 of the April number of the AMERICAN DRUGGIST, I find an editorial article on the supposed discovery of the active principle of hops, and called by the discoverer hopeïne, in which it is stated that it is similar to, if not exactly identical with morphine.

That there may be such an active principle I willnot deny, but there is also another principle that is directly antagonistic to this action, or, in other words, something very much resembling atropine in its action.

I have in my possession, the notes of a very marked case where the action of this kind occurred, and the patient was, by the expansion of the pupil, rendered totally blind, except in a room where the light was almost wholly excluded.

The facts taken from my note book of February 13th, 1884, are as follows:

One of the workmen employed in the iron-plating shop in the Navy Yard, N. Y., called at the surgeon's office, and stated that he had been attacked with severe neuralgic pains over the right eye, and that in order to relieve the pain, he had applied a hop poultice to the part affected, the poultice covering the eye, and remaining in this position all night. On removing the poultice the next morning, the pupil of the eye was found to be dilated to such an extent as to nearly obliterate the iris, making the patient totally blind in this eye, but not affecting the other in any way.

The dilatation was very persistent, continuing for nearly a week before the pupil finally recovered its normal size and condition.

The only treatment resorted to was, to keep the light entirely excluded by means of a shade, and as the patient complained of a sensation of heat and a sort of burning pain, he was told to make frequent applications of cold water.

I will state that I examined carefully at the time a portion of the hops from which the poultice (which was the form in which they were used) was made, and could find no trace of any foreign substance. They were in a fresh state, and the lupulin was very plentiful.

I was at the time very much surprised, but on making inquiries among some medical friends who had from time to time attended persons employed around the different breweries of this city, they told me that they had noticed the same phenomena in the men who came in direct contact with the steam which rises from the hot fomentations made directly from the hops, but up to that time they had not thought to attribute the cause to any action of the hops, being rather inclined to ignore it altogether, as it soon passed away, and after a time they did not suffer any more than a temporary inconvenience, lasting only a few minutes on coming into a strong light. Owing to want of time and the facilities for carrying out the experiments necessary to arrive at the exact truth of this matter, I was forced to abandon it for the time, and it had not occurred to me again, until I saw this article in your journal. Z. A. J.

Constituents of Hops.

Now that the constituents of hops are being more closely studied, it is worth while to mention that V. Griesinger, who (in 1874) isolated from hops an alkaloid which he called lupuline, now believes that this was probably choline. At the same time he believes that this choline is a product of the decomposition of lecithin, and that only the latter exists in hops. (*Allg. Zeitsch. f. Bierbrauer*, 1885, 1003.)

According to L. Fries, hops contain about 1 per cent of asparagin. Hence about 30 per cent of the nitrogen contained in an extract of hops are derived from this substance. (*Zeitsch. f. d. gesammte Brauwesen*, 1885, 267.)

Regarding a peculiar effect produced by hops, which may possibly be due to the presence of a body not yet isolated, see the communication of "Z. A. J.," printed elsewhere in this number.—ED. AM. DR.

COMMERCIAL CREAM OF TARTAR.*

BY E. H. W. STAHLHUTH, PH.G., OF CINCINNATI.

AFTER giving an account of the origin, mode of manufacture, properties, and commercial relations of cream of tartar, the author makes a report of the results of his examination of a number of commercial samples. He says:

Samples were obtained from large and small cities in Ohio, Indiana, Kentucky, and West Virginia. Ten were from drug-stores and ten from grocery stores, Nos. 8 and 15 being obtained from wholesale houses. Four samples were also obtained direct from manufacturers, their best article being specified. The pharmacopœial and other tests were applied as explained below.

METHOD OF ANALYSIS.

A small quantity of the sample was placed in a test tube and shaken with distilled water acidulated with nitric acid; one portion was tested for chlorides with nitrate of silver; the other for sulphates with chloride of barium.

A weighed quantity of the sample was placed in a vial and shaken with an excess of aqua ammonia. The contents were then poured upon two filters, counterbalanced, and placed one within the other.

When the liquid had drained through, the filters and contents were washed with distilled water rendered alkaline by ammonia, until a drop of the filtrate evaporated on a glass rod left no residue (unless sulphate of calcium was present). The filters and contents were then dried on a water bath and weighed, using the outer fil-

* Abstract of a Thesis presented to the Cincinnati College of Pharmacy.

ter for a counterbalance. (The ammonia combines with the bitartrate of potassium to form double tartrate of potassium and ammonium, which is very soluble.)

Alum, if present, will be decomposed, aluminium being precipitated as hydrate which is insoluble in excess of ammonia.

Acid phosphate of calcium, if present, is also precipitated by ammonia.

But little impurities pass through the filters; the insoluble portion is therefore a fair estimate of the impurities. The solution in ammonia was tested for metals with sulphide of ammonium.

To the insoluble portion was added dilute hydrochloric acid. This will dissolve it with the exception of starch and plaster of Paris. Effervescence would indicate chalk. To the hydrochloric acid solution was added excess of ammonia; a precipitate would indicate alum.

The precipitate was filtered out, and to the filtrate was added oxalate of ammonium; a precipitate indicates calcium. The portion not dissolved by hydrochloric acid was boiled in distilled water, allowed to cool, and test solution of iodine added. Starch or flour will produce a blue coloration. If a residue remained after repeatedly treating with boiling water and hydrochloric acid, it was probably plaster of Paris, and was subjected to direct tests.

To those samples that were not adulterated, the U. S. P. tartrate of calcium test was applied: 1 Gm. was digested for one-half hour with 5 C.c. dilute acetic acid, then diluted to 500 C.c. and filtered, and to 25 C.c. of the filtrate 5 C.c. test solution of oxalate of ammonium added. It should not become cloudy in less than one minute, nor distinctly turbid in less than one minute and a half. Absence of more than 6% tartrate of calcium (U. S. P.).

Tests of phosphates were also applied, according to Attfield, but only one gave the reactions. Those samples adulterated with alum contained moisture equivalent to the water of crystallization of the alum, all others were anhydrous. All tests were confirmed by other tests.

SUMMARY AND RESULTS.

The samples obtained from manufacturers were all as represented. They contained from 99.9 to 99.75 per cent of pure cream of tartar.

Those from drug stores were all nearly pure, containing but little tartrate of calcium, while not one was adulterated. Of the samples obtained from grocery stores but one was pure; that was in a one-quarter-pound package, and was sold at fifteen cents per package.

Two samples were substitutes, and consisted of bicarbonate of sodium. It would appear that the dealer made a mistake, but both claimed that it was cream tartar, and not baking soda. One of these was sold at ten cents per pound, while the other was sold at cream tartar prices. The other seven samples were grossly adulterated; the adulterants were: alum, starch, plaster of Paris, acid phosphate of calcium, and chalk. [The elaborate table appended by the author is omitted, as the main results are given above.—ED. AM. DR.]

Decomposition of Iodide of Potassium in Water.

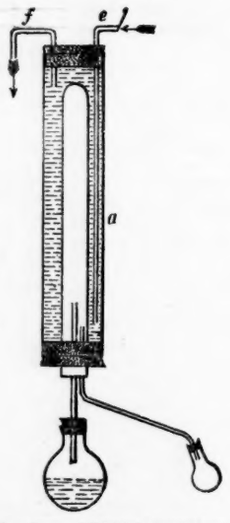
ACCORDING to J. Mühe, iodide of potassium dissolves in water without partial decomposition only when the water is free from carbonic acid. In testing iodide of potassium, therefore, it is advisable always to use well-boiled water and a perfectly neutral solution of starch.—*Pharm. Centralh.*, 1886, 55.

THE DETECTION OF ARSENIC IN FABRICS.

SWEDISH law prescribes the method by which arsenical mirrors are to be developed in hygienic analysis, namely, through the reduction of sulphide of arsenic, by means of soda and cyanide of potassium in a current of carbonic acid gas. No directions are given how the sulphide of arsenic is to be obtained, probably because it was supposed that sufficient uniformity already existed in this respect. In order to afford others an opportunity of following the same method, the official analyst at Stockholm sends a description of it to the *Chem. tech. Central-Anzeiger* (Dec. 17th).

100 square centimeters of wall-paper

The detection of arsenic in fabrics.



New form of Liebig's condenser.

(supposing this to be the object of the analysis), or 3 Gm. (45 grains) of wall-paper color dried at 100° C. (212° F.) are placed into a flask *a* having the capacity of about 300 C.c. (10 fl. oz.) and 4 Gm. (60 gr.) of crystallized sulphate of iron, together with 50 to 100 C.c. (14 to 28 fluidrachms) of hydrochloric acid, spec. gr. 1.100 are added. Of course, all the utensils and reagents must have been previously ascertained to be absolutely free from arsenic. As soon as the material to be examined has been thoroughly penetrated by the acid, the flask is closed with a cork (not rubber) stopper, bearing the bent glass-tube *b*, to which is attached a 50 C.c. pipette *c* which dips with its point about 1 cm. (⅓ inch) below the surface of 100 C.c. of distilled water contained in the beaker *d*. The contents of the beaker are then heated to boiling and the distillation so adjusted that it is completed in ten or fifteen minutes. At this time the upper part of the pipette must feel quite hot; if it is not, the distillation must be continued until this point is reached.

The contents of the beaker are then mixed with 100–150 C.c. of hydrosulphuric acid water, as concentrated as possible, and the whole set aside for twelve hours. All sulphide of arsenic will by that time have been deposited, and the liquid is then passed through a small filter (5–6 Cm.). The sulphide of arsenic remaining on the filter is washed thoroughly, and then dissolved in sulphide of ammonium. The resulting solution is transferred to a watch-glass, mixed with soda and dried at 100° C. (212° F.). When the mass is thoroughly dry, it is intimately mixed with soda and cyanide of potassium (equal parts of each), transferred to a reduction tube, and the mixture there reduced by ignition, a stream of dry carbonic acid gas passing through the apparatus. The reduction tubes have the shape shown in Fig. 2. The mixture is introduced at *a* so that it may reach *b*. The current of gas likewise enters at *a*. When the mixture is melted, the metallic arsenic which volatilizes produces a mirror at *c*. At this point, the diameter of the tube should be only 1.5 to 2 millimeters. Special attention should be paid to see that the glass of the tube is free from arsenic, a condition which is fulfilled by but very few samples of glass.

This method yields good results. If the reagents are pure, there is a loss of 0.04 milligrammes of arsenious acid, in consequence of the solubility of sulphide of arsenic in the volume of liquid from which it is precipitated.

NEW FORM OF LIEBIG'S CONDENSER.

CHAS. B. GIBSON proposes the form of Liebig's Condenser shown in the illustration. It may be used whenever the liquid in the flask, or collecting in the condenser, is not likely to be ignited by the flame used in heating the contents of the former. And if no open flame, but steam or some other source of heat is used, it may be used even with ether, benzin, etc. Its construction is intelligible without further description.—*The Analyst* and *Rep. d. Anal. Chem.*, 1886, No. 5.

A Stable Reagent for Glucose.

F. CRESWELL, a late house physician in a London hospital, reports through the *British Medical Journal* a formula for a substitute for Fehling's solution, which he has kept between four and five years without its having lost its sensitiveness as a test for urine-sugar. 35 grammes of sulphate of copper are to be dissolved in 200 C.c. of glycerin and 100 C.c. of water. To this add 80 grammes of sodium hydrate dissolved in 400 C.c. of water, and boil the whole for fifteen minutes. Then add enough water to make 1 liter, and allow it to stand until it is clear. This may be standardized with a solution of grape-sugar of known strength when required for accurate determinations, and needs to be diluted for use. For rough clinical work, this quantity may be diluted to 1,250 C.c., when 10 C.c. will reduce 5 centigrammes of urine-sugar.

In use, 10 C.c. are to be mixed with 50 C.c. of water and boiled in a small flask, and the solution of glucose (which should not contain more than 1%) is slowly added from a burette during constant boiling, until the blue color has disappeared from the contents of the flask. The quantity of sugar-solution used must then have contained 5 centigrammes of sugar.

AUTOMATIC SHUT-OFF FOR GAS-BURNERS.

ON page 67 of our volume for 1884, we illustrated a contrivance for automatically shutting off the supply of gas to a burner in case the flame should at any time go out of its own accord. The shutting off was accomplished by the dropping of a weighted lever, which was maintained in a horizontal position by a metallic tongue, made to project through the effect of the hot flame.

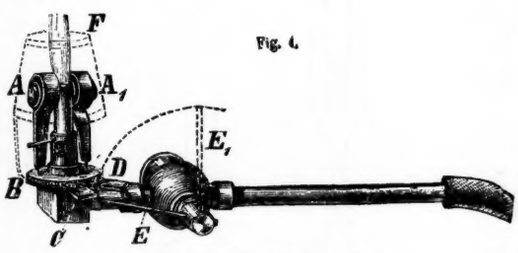
This apparatus has been found to have two drawbacks. One is this, that it requires a considerable space to permit the full drop of the lever-arm; and the second is this, that the temporary holder *e* of the lever which is to retain the latter horizontally until the heated tongue can project far enough to support it, may be forgotten to be released.

These drawbacks are avoided by Mr. H. Rohrbeck in the following manner:

The stop-cock is controlled by a handle which, in its normal position (shutting off the gas), is at a right angle to the supply-pipe, viz., at *e;* it is held by a strong spring, and caused by the latter to return to this position whenever released. On depressing the handle to the position *e*, and pushing over the end of it the tongue *d*, the handle will be held horizontally. If now the gas is lit, the heat of the flame will cause the two spirals situated at either side to expand, and as a consequence of this expansion, the tongue *c* will move forward, engage the end of the handle and release the tongue *d*, which thereupon flies back to its original place. The handle is now held by *c* alone, and should the spirals become cold through an extinction of the flame, this tongue *c* would retract, release the handle *e*, and the latter would at once return to the position *e*, shutting off the gas. As the handle thus turns upwards (instead of falling, which was the case in the older form of apparatus), a stop-cock of this construction may be arranged upon the surface of any work-table.

The pipe bringing the supply of gas may be so arranged that it is held by the clamp of a stand, whereby it may be raised or lowered together with the burner. At *f* is shown a conical chimney, to be made of mica, which may be placed over the flame as shown in Fig. 1.—*Dingl. Polyt. Journ.*

Fig. 1.



Automatic shut-off for gas-burners.

Two gentlemen connected with the Chelsea Vestry (London) reported a joint inquiry relative to the degree of accuracy observed in the dispensing of prescriptions, chiefly in their own parish, and the result, as given by the *British Medical Jour.*, is greatly to the credit of the out-and-out chemist and druggist. Fifty prescriptions were sent out, namely, 30 to chemists and druggists, 14 to co-operative stores, 2 to "doctors' shops," and 4 to certain drug companies. A liberal margin was allowed for errors, no prescription being rated as incorrectly made up if the principal ingredient came within 10% of the amount ordered. Seventeen of the 50 prescriptions were rated as incorrect. In one case, the drug was 85% less than ordered, and in another 57% more than had been ordered. Only two of the prescriptions sent to chemists and druggists were "scheduled," while 3 from co-operative-stores, 1 from a "doctor's shop," and 3 from the drug-companies were put on the black-list. In other words, 6% of the chemists' and druggists', 20% of "stores'," 50% of the "doctor's," and 75% of the drug company's prescriptions failed to be satisfactory.

NOTES ON PRACTICAL PHARMACY.*

LOTIONS, EMBROCATIONS, ETC.

TARTAR EMETIC, also *sulphate of zinc* (for itch-ointment) should be triturated to an impalpable powder and only mixed with the fat in the form of a dry powder.

Iodide of Potassium is dissolved in two-thirds of its volume of water and mixed with pure lard or a white fatty base. If the mixture should assume a yellow or brown color, this may be removed by the addition of a few drops of the solution of *hyposulphite of sodium.* If the fatty base is a colored ointment such as *ungt. diachylon, ceratum resinæ*, etc., and the mixture takes on a brown color, it is not permissible to remove the color by employing a corrigent thereof. The use of this corrigent is allowable only when the physician requires a colorless mixture.

Iodine should be powdered in a mortar first by itself and then with about a third of the fatty substance. A few drops of alcohol are then mixed in, and, after rubbing the mixture for a few moments longer, the rest of the fat is added to it. If haloid compounds, such as iodide of potassium, ammonium, or metallic salts, enter into the composition of the ointment, the addition of the alcohol is superfluous, since these salts, with the addition of a little water, either dissolve the iodine or create easily diffusible combinations with it. Ointments of iodine, which contain volatile oils, may be of a brown or yellowish-brown color at first, but they frequently lose this color in a short time and become more or less bleached.

Iodine and *Bichloride of Mercury* (for example, equal parts) in white ointments with *lard* do not yield red or brown mixtures, but colorless ones. Even if the mixture be colored at first, it very soon bleaches completely.

Chloride of Lime, dry, is to be powdered and mixed with the fat.

If CHLORIDE OF LIME is to be mixed with GLYCERIN, it should first be mixed with its own weight of water and the glycerin then added to it. If it were to be mixed directly with the glycerin, the latter would be attacked by chlorine, one of the decomposition-products being a fruity-scented gas which escapes while the action of the chloride of lime is destroyed. Whereas, if it is first mixed with water, it will preserve its active chlorine for at least several hours, or possibly throughout an entire day.

Balsam of Peru should not be mixed either with the whole of the melted fatty substance, or with a part thereof; but in all cases it should first be triturated with a little of the cold fat with the addition of a trace of alcohol, say three to four drops to one gramme of balsam.

AQUEOUS EXTRACTS should be mixed with water, and ALCOHOLIC extracts with diluted alcohol, into a soft paste and then added to the fatty substance.

OPIUM for plain ointment mixtures is made into a paste with two-thirds its volume of water.

CAMPHOR should be rubbed to a fine powder with a few drops of alcohol and then mixed with a little olive oil before being added to the fatty substance.

ALCOHOLIC FLUIDS, except in small quantities, cannot be thoroughly mixed with fats, especially when the latter are of a firm consistence. Even if this is possible by heating the mixture, they separate again partially on cooling. An addition of a fatty oil, to facilitate the mixing, makes the ointment too soft. One part of tincture or other alcoholic fluid can be mixed with five parts of the fatty mass, by being agitated with it. When large quantities are to be used the process is performed by the addition of a trifling portion of powdered soap, when this does not cause decomposition of any of such metallic salts as are still to be added. The mixture is effected by so triturating the fat in a mortar that its bottom and sides become coated with a layer of the fat. The spirituous liquid is then to be gradually mixed with it in small quantities. If this precaution be not taken, the mixture will be very difficult to make. The fatty substance adheres to the pestle and slides about on the bottom of the mortar, which are moistened with alcohol, without clinging to them. By proceeding in the manner above described we can mix a fifth part of alcohol with soft lard, and a sixth part with firmer ointments, although such a mixture does not keep very long. By the addition of a little soap-powder a tolerably permanent mixture is obtained. If the alcoholic fluids which are to be mixed with fat, in addition to the above-named substances, do not contain any very volatile drugs, they may be evaporated in a moderately warm mortar to one-half of their bulk, and the evaporated portion replaced by the fatty substance. This method should always be followed since an ointment which is swimming in alcoholic liquid, or from which the latter exudes on the slightest pressure, is not prepared *lege artis*. For example:

℞ Butyri insulsi... ...15.0	ʒ	½.
Tinct opii..... 7.5	fl. ʒ	2.
Argenti nitratis.... 0.12	gr.	2.

M. f. ungt.

7.5 grammes [or ab. 2 fl. ʒ] of tincture of opium are too much to remain mixed with 15 grammes [½ ʒ] of the fatty substance. Half of the tincture is therefore evaporated at a gentle heat to a soft mass, and this is dissolved in the other half of the opium tincture, and then 18 grammes of butter are to be mixed with it. (If fresh, unsalted butter is not at hand, a mixture of equal parts of cocoa butter and olive oil may be used in its stead.)

The *nitrate of silver* is to be dissolved in the tincture when the latter has

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*The basis of this series of papers is the last edition of Hager's "Technik der Pharmaceutischen Receptur." The editors have, however, found it desirable to omit certain portions which relate to matters of practice peculiar to Germany and to insert others which are more characteristic of American customs. Editorial additions are inclosed in [ ].
The use of the original text has been kindly granted by Dr. Hager.

cooled. [It would have been better to make the remark that nitrate of silver should never be prescribed in such combination. Indeed it may be established as a rule, that nitrate of silver should always be given in such form that the eye can detect whether it has undergone any decomposition or not. If it is to be employed as an ointment, it may be triturated and mixed with colorless vaseline. It may not be known to many of our readers, that there is an absolutely colorless vaseline and vaseline oil made in Russia, which is called *Caucasine*. This excels in appearance anything we have ever seen before. We know of no place in this country where it is kept for sale, but it could be easily imported if t here is any demand for it. We have a sample, sent by the Russian house, in our possession.—ED. AM. DRUGG.]

℞ Tinct. opii..... 5.0 | fl. ʒ 1½.
Ungt. hydrarg.....20.0 | gr. 300.
M. f. ungt. D. S. For inunction.

In this instance the tincture is evaporated to one-half, to which is added 0.5 [8 grs.] powdered Castile soap, and 2 grammes [30 grs.] of fat (to take the place of the alcohol that has been lost) and then mixed with the mercurial ointment.

℞ Unguenti simpl..... 30.0. | ℥ 1.
Tinct. opii,
Tinct. cantharidis...āā 5.0 | āā fl. ʒ 1½.
M. f. unguentum.

Here the tincture of opium (5.0 Gm.) is to be evaporated at a moderate temperature, the residue taken up with 5 grammes *tinct. cantharid.*, and after the addition of 1.0 gramme of powdered soap, mixed with the ointment. The tincture of cantharides contains volatile cantharidin, so that it must not be evaporated.

Oxide of Zinc, when used for ointments, in small quantities, should be finely triturated with a few drops of oil of almonds [or olive oil or another bland fatty oil], but when large quantities are required, the mortar is heated and an equal volume of the fatty substance is put in and mixed with it. After the mortar has cooled, the other ingredients are added.

℞ Zinci oxidi..... 1.0 | gr. 15
Opii puri ..... 0.2 | gr. 3
Ungt. Aquæ Rosæ.....15.0 | ℥ ½

M. f. ungt. S. to be spread on the edge of the eyelids.

(*Nota Receptarii*) *opium aqua contritum.*

The *opium* is to be triturated with five drops of water, and then the oxide of zinc with one gramme *Ungt. aquæ rosæ* added to it, the mortar gently warmed, and the oxide of zinc very finely triturated, and after the mortar has cooled, the remaining quantity of *Ungt.* mixed in.

℞ Zinci oxidi,
Tinc. Benzoini,
Glycerini,
Cetacei,
Ol. Amygdal..... .....āā 10.0

M. f. ungt. S.

The oxide of zinc is to be triturated as finely as possible with a portion (4.0 grammes) of the oil of almonds, and then mixed with about 2 grammes [30 grs.] of soap-powder, and then with the rest of the almond oil into which the melted spermaceti had been poured while still hot, and then a mixture of 10 grammes of *tinct. of benzoin* and *glycerin* each, from which 2 grammes of alcohol have been evaporated, is added while still hot, and the mixing is completed by vigorous agitation. The agitation must be continued until the mixture is entirely cool. The foregoing unusual ointments are by no means imaginary examples, but are taken from practical pharmaceutical experience.

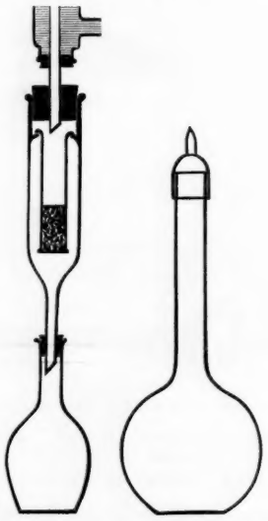
In some cases, the alcohol may be evaporated without the loss of any of the volatile substances dissolved in it. If, for instance, the *mistura oleoso-balsamica* is mixed with some fatty substance and evaporated in a water-bath, the fat absorbs the volatile oils, and only the alcohol is evaporated. The preferable method, however, is to mix the active constituents of the alcoholic fluids with the fatty substance, with omission of a portion of the alcohol, and supplying the loss by fat.

If the salve contains resins, or substances which are easily soluble in alcohol, such as *Unguentum Elemi*, *Unguentum basilicum*, it will easily take up a fifth of its weight of alcoholic fluid by being agitated; for example:

℞ Unguenti basilici 30.0
Tincturæ myrrhæ..... ..... 6.0
M. l. a., ut unguentum molle.

At the ordinary temperature lard will take up about ⅛ of water, ⅛ diluted alcohol and ⅛ of 90% alcohol, if thoroughly mixed with them in a mortar, and will hold them for a long time.

OPODELDOC, *Linimentum Saponato-camphoratum*, is very difficult to mix



Amthor's apparatus for estimating glycerin.

(See p. 85.)

with fat ointments, especially with blue ointment (*Unguentum Hydrargyri*), and almost impossible when equal quantities of each are employed. When triturated together in a mortar, the spirituous and fluid elements of the opodeldoc separate, and cannot be made to re-unite. Some dispensers carefully mix the opodeldoc and mercurial ointment in ointment pots. This mixture lasts hardly an hour, and, besides, is ill adapted for use in inunctions. Considering that the public readily judges the pharmaceutist by his productions, and that the physician cannot control the matter (since, if he orders a certain kind of mixture, it is natural to conclude that he thinks it a possible one), the dispenser should not be blamed if he has recourse to innocent expedients for his assistance. On the other hand, the dispenser may and should consider it his duty to put the prescription of a physician who understands little or nothing of the art of dispensing into a form corresponding to pharmaceutical usage, especially if he does not alter the efficacy of the medicine.

The NECESSARY modifications of a prescription should never be kept secret, but noted at length on the prescription.* In the following instance, the dispenser adopts the same method that may be used for mixing large quantities of *Mistura oleoso-balsamica* with fatty ointments.

℞ Lin. Saponato-camphorati,
Unguent. Hydrargyri ..āā 15.0
M. f. ungt.

Here 0.33 grammes (5 grains) of camphor are triturated in a mortar with a few drops of alcohol, 1.0 gramme (15 grains) of soap powder, 1 drop of oil of thyme, 2 drops of oil of rosemary, 15 drops caustic ammonia-water, and 25 drops of alcohol, and to this mixture is added the mercurial ointment and some fat (12.0 grammes, or 3 drachms), to supply the place of the alcohol that has not been added. If the physician desires a superficial mixture of the opodeldoc with the mercurial ointment, he should indicate it on the prescription, for instance, by *ope bacilli vitrei agitentur et misceantur* (stir and mix them with a glass rod).

NITRIC and MURIATIC ACIDS are mixed with fats by agitation in a porcelain mortar, the fat being rendered semi-fluid by heat, and the agitation continued until the mass has become cold, if the prescription directs only a "*misce.*"

FLOWERS OF SULPHUR and BLACK SOAP [this is unknown in this country; the nearest approach to it is *green soap*] should be mixed together and then saturated with boiling water to the consistence of a thin jelly, if the prescription requires dilution with water. Usually as much water is taken as will counterpoise the weight of the sulphur and soap.

If an addition of CHLORIDE OF AMMONIUM is prescribed, the mixture will remain liquid.

BISULPHIDE OF CARBON, when an ingredient of ointments, requires careful handling on account of its great inflammability. During the mixing no flame or burning light must be brought near it, or else the mixing must be done at a distance from the fire. The bisulphide of carbon must be weighed out into a small flask, and at some distance off, the fatty constituent is to be placed in a glass vessel with a wide mouth (opodeldoc-glass) and heated until it becomes semi-fluid. When the glass has cooled until it is barely lukewarm, the bisulphide of carbon is to be added to it and the mixing completed by stirring with a glass rod. The glass vessel is then to be closed with a cork.

Saponimentum is an alcoholic solution of soap resembling opodeldoc.

POWDERS FOR EXTERNAL USE.

These are prepared according to the rules which hold good for the manufacture of powder, but it should be carefully noted that ERRHINES, *Pulveres sternutatorii* are to be dispensed in medium fineness; EYE POWDERS, *Pulveres ophthalmici*, and SPRINKLING POWDERS, *Pulveres adspersorii*, in very fine, and FUMIGATING POWDERS, *Pulveres ad suffiendum*, in coarse form.

PILLS FOR EXTERNAL USE.

TOOTH-PILLS, *Pillulæ antodontalgicæ*, and FONTANELLE PILLS, *P. ad fonticulos*, are prepared like pills for internal use; the addition of mucilaginous substances, such as powdered marsh-mallow root, tragacanth, etc., should be avoided as far as possible, unless specially prescribed.

(To be continued.)

Viburnum prunifolium is credited by Dr. W. M. Campbell, of Liverpool, with arresting abortion in a small series of cases, but its action appeared so decided that he is confident of its power. It was customarily given in pill form, the fluid extract having been reduced by evaporation: and three grains, repeated two to four times daily, sufficed to quiet the expulsive action of the womb.—*Brit. Med. Jour.*

* This applies only to Germany. In France any alteration of a prescription is forbidden and punishable by law.

DETERMINATION OF GLYCERIN.

REFERRING to the method of Medicus and Full, for determining the amount of glycerin in wine (which was given in abtract in our March number, page 52), C. Amthor published a short paper in which he points out that uniform results by different experimenters can be obtained only when all conditions are rendered alike, and an exact agreement is arrived at regarding each step of the manipulation. He shows that very considerable discrepancies between several assays may occur from the neglect of proper precautions.

Since the method is not only useful in determining glycerin in wine, but also in many other liquids containing glycerin, we will quote Amthor's modification:

100 C.c. of the wine are mixed with 3 grammes of caustic lime and with 10 grammes of coarse quartz-sand previously washed with hydrochloric acid and ignited. The mixture is then evaporated, being stirred towards the end, so that it may assume a granular appearance. When dry, the mass is loosened as much as possible with a knife—the capsule being placed upon a large sheet of paper—then well mixed with a pestle, and transferred into the extraction apparatus (see cut).

The capsule is scoured with 15 drops of distilled water, and this liquid also transferred to the extractor. The last portions of it are washed into the extractor with 2 C.c. of 90-per-cent alcohol. 30 C.c. of 90% alcohol are placed into the flask, the extraction apparatus put together, and the extraction accomplished by heating during six hours under an upright condenser (the lower part of which is only shown in the cut). After allowing to stand over night, the extracted mass is treated with three successive portions of 5 C.c. each of absolute alcohol, in order to wash down any glycerin that may have become vaporized during the cooling. In this manner about 40 C.c. of liquid are obtained, which are evaporated on the water-bath to 20 C.c. 30 C.c. of ether are then added, and the mixture set aside over night. The clear solution is then poured off, the residue washed with 5 C.c. of the same mixture of alcohol and ether, and the ethero-alcoholic solution evaporated in a small flask having a long neck, and which may be closed with a ground stopper. This evaporation or drying should continue precisely two hours in a drying oven at a temperature of 100° C.c. (212° F.). The weight of the ash [ascertained from a previous experiment, or ascertained from the residue, re-dissolved and re-obtained by evaporation in a crucible] is to be deducted. It is necessary to have some uniform standard for the size and shape of the flask. The author recommends to use a flask of 100 C.c. capacity, with a neck 10 Cm. (4 inch.) long, and 1.5 C.c. ($\frac{a}{16}$ inch) internal diameter (see cut on page 84).

A SAFETY-TUBE FOR EXTRACTION APPARATUS.

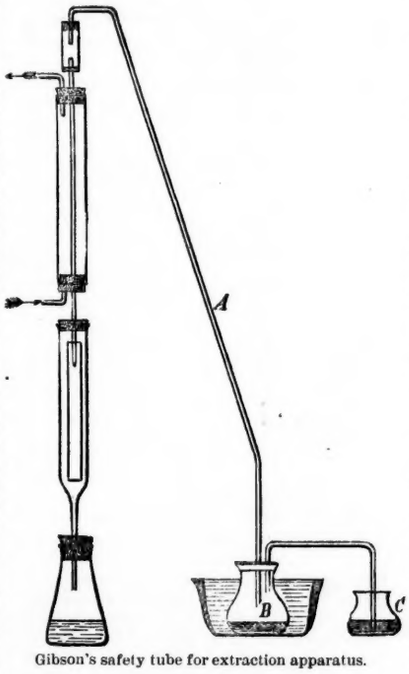
IT is not uncommon that the vapors of volatile liquids used in an extraction apparatus are not completely condensed, and escape into the air, whereby the risk of ignition is sometimes incurred. To guard against this, Mr. Chas. B. Gibson proposes to lead a tube *A* from the condenser to a flask *B*, weighted down with mercury, and standing in a vessel full of cold water. A second tube passing through the stopper of *B* leads to another flask *C*, also containing a little mercury and some oil. Any uncondensed vapors, when they arrive in the flask *C*, will be absorbed by the oil.—*The Analyst* and *Rep. d. Anal. Chem.*, 1886, No. 6.

Kava-Resin as a Local Anæsthetic.

THE discovery of the anæsthetic action of cocaine when applied locally to mucous membranes has stimulated the search after other bodies of similar properties. Several have already been met with, though none of them is able to replace cocaine in all its functions. One of the most interesting of these is a resin existing in *Kava*, the root of *Piper methysticum* Forst., which has been examined by Dr. Lewin, of the University of Berlin, from whose pamphlet* on the subject we take the following statements:

Kawa or Kava (or Ava) has been chemically examined by Gobley, O'Rourke, and Cuzent, who found it to contain, besides the usual plant constituents, a peculiar resin (O'Rorke's "kawin"), a neutral substance (kawahin, or methysticin), and some ethereal oil.

When the finely-powdered root is thoroughly extracted with hot absolute alcohol, and the resulting liquid deprived of alcohol, there will remain a residue of a greenish-brown color, tough and sticky, and mixed with crystals. This has a peculiar odor, and when it is left for some time in contact with water, it imparts to the latter its odor, and also a faint green-



Gibson's safety tube for extraction apparatus.

ish-yellow tint. It was this residue which formed the starting-point of Dr. Lewin's experiments.

On pressing the residue between filtering-paper, or on drying it in thin layers upon porous plates, brownish-yellow crystals are obtained which may be purified by recrystallization from alcohol, with the aid of animal charcoal. These constitute the substance known as kawahin or methysticin. This may also be extracted by repeatedly distilling the residue with water, as it volatilizes in a current of steam. The kawahin may also be extracted by passing boiling water through the alcoholic residue on a filter. On cooling, it crystallizes in white crystalline needles.

In the last mother-waters remaining after the crystallization of kawahin, there is contained another crystallizable constituent, first observed by Noelting and Kopp, and named by Dr. Lewin *yangonin*, after one of the names, viz., *yangona*, under which the plant is known upon the Fiji Islands. This is evidently related to the kawahin, to judge from its elementary composition and other facts. Neither of the two preceding substances, however, appears to be of special interest medicinally.

After kawahin and yangonin have been removed from the residue, there remains a resinous mass, a great deal of which is absorbed by the filtering-paper used in pressing, and which may be again extracted from this by cold alcohol. When moderately pure, it forms a soft, yellowish or brownish-green mass, melts by warming, and has a peculiar aromatic odor. On treating this resinous mass several times with boiling water, it acquires a brownish-black appearance. It is soluble in alcohol, ether, chloroform, benzol, carbon disulphide, oil of turpentine, paraldehyde, and acetic acid. With concentrated sulphuric acid, the resinous mass strikes a blood-red color.

It had been reported that this resin decomposes when heated beyond 50° C. (122° F.). Dr. Lewin found it to be absolutely unaltered even when heated to about 90° C. (194° F.).

The existence of several different kinds of resins in this mass is already evident to the eye, inasmuch as the mass has a peculiar striped or variegated appearance, particularly when kneaded in water.

Two resinous substances had already been distinguished by previous experimenters, but Dr. Lewin did not follow their plan in separating them. He preferred the use of boiling petroleum ether. Instead of treating the resinous mass with this solvent, however, it is better to treat the root itself. The petroleum ether will gradually acquire a yellowish-green color, and, on evaporation, re-solution of the residue in alcohol, and evaporation of the alcoholic solution, it leaves behind a yellowish-green oily liquid, which is only slightly sticky and thin-fluid at first, gradually becoming somewhat viscid when exposed in an open capsule.

Dr. Lewin designates this substance temporarily as the *alpha-resin of Kawa* (α Kawa-resin), and remarks that it may possibly hereafter be found more entitled to be called *Kawa-oil*.

This *alpha-resin* (or oil) possesses, in a high degree, the odor and taste of Kawa. It is easily soluble in alcohol, chloroform, and ether, imparts to water boiled with it its peculiar odor, and produces an orange-red color with concentrated sulphuric acid. When dropped on paper, it gradually produces an oily, permanent stain. It dissolves in solution of soda with a yellowish-green color, and the solution remains clear when diluted with water. On boiling the resin with water, the latter turn yellowish-green, and small oil drops collect on the surface; on cooling, the liquid turns milky like an oil-emulsion. The reaction is neutral, and Fehling's solution is not reduced by it, until after being boiled with hydrochloric acid.

Another resin, designated as *beta-resin of Kawa* (β Kawa-resin) may be extracted from the root by absolute alcohol.*

Local Effects of Kawa and its Constituents.—On chewing Kawa, there is noticed at first an aromatic, slightly bitter taste, which afterwards becomes pungent, or sharp and biting like pepper, the sensation depending upon the quantity chewed. During the chewing and for a few minutes afterwards, the quantity of saliva is increased, and it acquires, like the tongue, a yellowish or yellowish-brown color. After the pungent taste has lasted a short time, a sort of numbness is experienced on the tongue which is accompanied by a diminished sensibility to

* "Ueber Piper Mysthicum (Kawa)." Untersuchungen von Dr. L. Lewin, Docent der Parmakologie an der Universität Berlin. 8vo, Berlin, 1886.

* E Merck, of Darmstadt, prepares both resins, and offers them at 1 mark per gramme for the alpha-resin, and 0.30 mark per gramme for the beta-resin. These prices would have to be correspondingly increased for importing the articles.

contact. This condition may last many minutes.

Of the constituents of Kawa, the *kawahin* and *yangonin* are entirely devoid of this benumbing power, but the alpha-resin possesses it in a very high degree. Even when only a minute portion is placed upon the tongue, a fatty or soapy taste is noticed, and a sensation of numbness and loss of sensibility supervenes, by which the whole of the gums and other portions of the cavity of the mouth, which may come in contact with the drug, are affected. Some describe the sensation by comparing it to that produced by scalding the mouth with a very hot beverage. This sensation may last for ten minutes or even longer; it is not accompanied or followed by any signs of inflammation, but rather by a slight paleness.

The beta-resin acts similarly, but more feebly.

On introducing a minute piece of the mixed resins [E. Merck also sells this mixture] into the eye, *a complete anæsthesia* of the cornea and conjunctiva is produced in about three minutes, or less time. This condition was found to be quite lasting. On further investigation, it was found that the powder of the root, when introduced into the eye, produced the same effect. A watery infusion, carefully filtered, is, however, entirely inert [no doubt owing to the fact that the resins are insoluble in water]. The most prompt effects are produced by the *alpha-resin*. When first introduced, it causes an increased flow of tears; this effect lasts one or two minutes, and then disappears completely. At this time, complete anæsthesia has been established.

It does not appear from Dr. Lewin's pamphlet that the drug had been used upon man as a substitute for cocaine. But it is evident that, in the absence of the latter, and when kawa is available, it might be tried.

Practical Use of Chlorophyll.

A NEW and rather curious use for chlorophyll seems to be indicated by some researches of M. Godin, as recorded in *Comptes Rendus* last month, which are worthy of the particular attention of pharmacists and others. The author states that a small proportion of the coloring principle named possesses the property of preventing vegetable oils, including those of the "siccative" class, from absorbing oxygen as long as light is excluded. Even the "varnish oils," such as linseed, remain "fat" and do not "skin over" if from ¼ to ½ per cent of chlorophyll be added and the mixture is kept in the dark. The admission of the solar rays, however, causes oxygen to be absorbed with greater rapidity than without the chlorophyll.—*Brit. and Col. Drugg.*

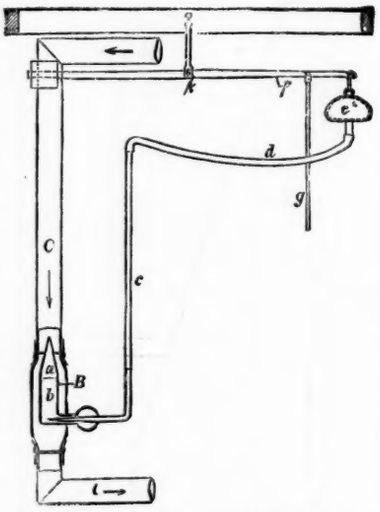
Estimation of Uric Acid.

WHEN it is desired to separate uric acid in as pure a condition as possible, the following process of E. Ludwig may be employed: 100 C.c. of the urine are treated with magnesia mixture and an ammoniacal solution of silver nitrate; in this way, a precipitate of magnesium silver urate and magnesium ammonium phosphate is obtained. The precipitate is digested with a solution of potassium sulphide, and filtered. The filtrate contains potassium urate, from which, after concentration, the uric acid is precipitated by hydrochloric acid. The uric acid is collected on a filter of glass-wool, freed from sulphur by washing with carbon bisulphide, dried and weighed. If the urine contains albumin, this must be first removed by boiling with solution of salt and acetic acid, and treating the filtrate as above. The author finds the precipitation of uric acid by hydrochloric acid is not complete, even after several days.—*Chem. Centr.* and *Journ. Chem. Soc.*

APPARATUS FOR THE PRODUCTION OF CONSTANT TEMPERATURES.

THE accompanying illustration explains the theory of a contrivance for producing constant temperatures patented by R. Kossmann, of Heidelberg.

Supposing the tube *C* to represent a portion of the apparatus in which a liquid circulates which is to be maintained at a constant temperature. Also, that a lever or balance-beam *f* is suspended at its centre *k*, in a convenient place, attached to or close to the apparatus. Further, that one end of the lever bears a counterpoise weight and the other a hollow cup *e*, connected by the tube *d c* with a small, conical, closed reservoir *B*, which contains, at *a*, a small quantity of a low boiling substance, such as ether, while the space *b*, the tube *d c*, and a portion of the vessel *e* are filled with mercury, so that, when the apparatus is cold, the lever may be exactly balanced. If now heat be applied to the reservoir, the contents of which circulate through *C*, the low-boiling liquid (ether, etc.) contained in *a* will expand, or be partly converted into vapor, and thereby force more of the mercury into the tube



Kossmann's constant temperature apparatus.

and up into the vessel *e*, causing the latter to sink. The balance-beam carries a rod *g*, which is connected with the supply of gas, and which by its downward motion diminishes (in any manner most convenient) the latter. When the temperature of the liquid falls again slightly, a portion of the mercury will flow back towards *b*, and the vessel *e* will rise again, thereby restoring the supply of gas. (Germ. Pat. 33,931, May 19th, 1885.)

Agaricin.

THE demand was recently made by a writer in the *Pharm. Zeitung* that *agaricin* should be assigned a place in the poison closet on account of its potent character. Mr. Jahns, of Göttingen, subsequently pointed out the uselessness of this demand, since the agaricin at present sold under this name in the market is nothing else but pure agaric acid, and perfectly harmless, as much as 2 grammes having failed to produce any bad symptoms in a cat. It is true that, as a remedy against excessive perspiration, it is given in very small doses (0.005 to 0.010 Gm., or $\frac{1}{12}$ to $\frac{1}{6}$ grain). But it simply acts remedially in this dose, and exerts no dangerous action on the system in a larger dose. Formerly there were other bodies in the market under the name agaricin. The *white* amorphous substance now sold under this name is free from the red resin, which is a drastic purgative.

Efficiency of Commercial Pepsins and Papain.

DR. W. MURRELL reports in *The Lancet* the result of an examination of the digestive power of 13 specimens of commercial pepsin of English, French, German, and American manufacture, only 4 came up to the standard of the *Ph. Brit.* He says that the name is no guarantee of purity, for the production of one well-known firm gave results that may be represented by the figures 871, whilst another, sold under a name equally well-known, was awarded only 162. The same pepsin is often sold under different names, according to the amount of impurity added.

In addition to the above, six liquid preparations, such as wines, essences, etc., were examined, with the result that, while none of them were absolutely inactive, none were very reliable.

To obtain good results in the treatment of dyspepsia, Dr. Murrell advises that two things are essential: first test your pepsin, and then give a plenty of it.

Six specimens of papain (same as papayotin) were examined; two only stood the pharmacopœia tests of pepsin, and the best was about half as active as the best pepsins when used in a similar manner.

Test for Pepsin.

THE official test for pepsin adopted for the British Pharmacopæia, on the recommendation of Mr. F. Baden Binger, is as follows (according to the *Year-Book of Pharmacy*, 1881, p. 417, *et seq.*): Hard-boiled white of egg is to be passed through brass or copper wire gauze with 36 meshes to the inch. A solution of 1% of strong hydrochloric acid (equal to 0.3% of HCl) is to be provided. 100 grains of the finely-divided egg-albumen are to be placed in a small glass or porcelain mortar and lightly rubbed with the pestle during the addition of 1 ounce of the acidulated water, to separate adherent particles. The mixture is then to be put into a test-tube 6x1 inches, a light stirrer of glass rod 7x1-16 inch inserted, and the tube placed in a water-bath. When six specimens are to be examined a beaker 7x4 inches half filled with water will hold them and also permit another tube, containing an ounce of plain water and a thermometer, to be inserted in their midst.

The water-bath and its contents having been heated to 130° F., two grains of the pepsin are to be added to each tube containing albumen and stirred. Stirring should be repeated every five minutes and the temperature of 130° maintained. Nearly all the albumen should have been dissolved in twenty minutes, and solution should be completed within thirty minutes. If the tubes are graduated from the bottom, the residue of undissolved pepsin can readily be noted. Or the undissolved albumen can be strained out and weighed.

"Tsuchiakabi."

TSUCHIAKABI is the name of a Japanese drug, to which attention is attracted in the *Lancet*. It is the dried fruit of an orchid indigenous to Japan. It yields its properties to water, to which it communicates an acid and bitter taste. The medicinal properties are considered to be due to a resin acid and glucoside. The Japanese employ a watery extract of the fruit for diseases of the urinary passages and bladder in cases in which cubebs and copaiba would be prescribed in this country. Over these medicaments it has the advantage of being free from disagreeable odor.

Coca.*

(Continued from p. 62.)

HISTORICAL NOTES.

THE coca plant, raised by mythology to the dignity of a gift of heaven, has played an important rôle both in the public and in the religious life of the ancient Peruvians.

It is related by Garcilasso de la Vega, that the children of the sun, Mama Oello and Manco Capac, appeared to the Indians at the shores of the Lake Titicaca. Both were of resplendent beauty. While Mama Oello instructed the women in domestic duties, Manco Capac imparted to the men the art of agriculture and the most necessary mechanical arts. The Indians, who had hitherto led a nomadic life, were thus united as a nation, and in this manner was laid the foundation of the empire of the Incas and of the city of Cuzco. In order to compensate his descendants to some extent for the hardships which they had been compelled to undergo, Manco Capac bestowed upon them the coca which "sates the hungry, invigorates the tired and exhausted, and renders the unhappy oblivious of his sorrow."

[As pointed out by Dr. Nevinny, there is a curious resemblance between the above and the well-known passage in the fourth book of the Odyssey where it is related of the daughter of Kronion that she "threw into the wine, of which they drank, a remedy allaying grief, soothing, and causing obliviousness of all sorrows."]

Thus is the tradition. It appears, however, that even previous to their coalescing into what might be called a nation or state, the native Indians already were acquainted with coca, and that the Incas had a special object in view, when they declared it to be a gift of the gods, namely to justify the monopoly claimed for it by themselves and the priestly caste. Thus it is easily understood why the royal family alone acquired the right to cultivate coca and to indulge in its use. As a token of his heavenly origin and his sole right of using coca, the king, when appearing in public, wore a *chuspa* (small leathern pouch filled with the leaves) of yellow color, as an official portion of his royal vestments.

And it is probably for the purpose of increasing still higher the heavenly nimbus floating about the royal family, that the wife of Mayta Capac (the fourth Inca) assumed the name of Mama Cuca.

It was regarded as a high distinction, and as a sign of especial favor, when the king presented foreign princes or the Curacas (nobles) of his empire with coca.

The priests who supported the pretensions of the royal family likewise drew the plant as one of the holy or sacred things within the sphere of their domain, and employed it in various ceremonies. While performing ordinary sacrifices, they constantly chewed coca leaves, but on solemn occasions they placed wreaths of coca on their heads. Objects intended for the sacrifice were likewise covered or decorated with coca, or the latter used as a sort of incense, and even offered as a sacrifice itself.

The idols dating from this period appear as having one of their cheeks distended by a "chew" of coca as a sign of divinity.

Gradually, the use of coca extended from the priestly class to the people, and finally became such an indispensable necessity that absolutely nothing was undertaken in private life without coca. While this custom still prevails in our days, the religious veneration has changed to superstition among the Indians, who use it in all imaginable conditions of life, and ascribe to it the most absurd powers.

The immense consumption of coca compelled the Incas, who firmly retained its monopoly, to seek new localities for its cultivation. Hence there arose, upon the eastern slope of the Andes, in the warm wooded tract extending towards Apurimac, so-called *antis* or *montañas de los antis*, that is, colonies in which the plant was largely cultivated. The planters were compelled to deliver the harvest to the *mitimoës*, or official collectors, appointed by the king, for delivery to the latter or to the priests.

When Pizarro penetrated into Peru, in 1532, he found coca to be not only in universal use, but also to be much abused as an article of consumption. In the beginning, the conquerors paid no attention to the custom of chewing the leaf, since they had been familiar with the general habit of other Indian tribes to have something or other in their mouths. As soon, however, as they learned of the religious veneration bestowed on the plant, they at once began to condemn its use, declaring its benefits to be doubtful, and indulgence in it sinful. Yet it did not require a long time to show that the natives were incapable of performing any protracted labor, particularly in the mines, without coca. And as the Spaniards mainly cared for gold, their views regarding coca experienced a sudden change. The existing coca plantations (*cocales*) were annexed, new ones were started, and the poor people were gradually subjected to the most shameful treatment, merely with the object of filling the pockets of the invaders. The proprietors of the plantations and of the mines mutually worked for each other's benefit. While the former, who were unacquainted with the mode of cultivating coca, compelled the natives by force to work upon their plantations, the owners or managers of the mines paid off their laborers, not in money or subsistence, but in—coca. Consequently, the consumption of coca was enormous, and the revenues of the planters in proportion. It is said, for instance, that the coca plantations of Guamanga yielded a yearly income of between $20,000 and $40,000. This period, however, was not of long duration. Having witnessed the great mortality among the natives, caused by their exposure to an unsuitable climate, excessive labor and want of proper food, the Government issued strict orders (in 1560, '63, '67, and '69) forbidding the forced labor in the plantations, and the supply of coca to the laborers, because—so the edict says—the plant is nothing but a sort of witchcraft and deviltry, appearing to give strength by the aid of Satan, and not possessing any virtue whatever, etc.

The second Council of Lima likewise attempted to discourage the use of coca from a religious standpoint.

All these measures, however, were of no avail, the profit being so great that the Government finally began to monopolize the cultivation of the coca. But, owing to the law against the employment of forced labor, and owing to increased wages and a diminished consumption, the cultivation gradually diminished from about the year 1618; and in consequence thereof, gave up the undertaking, and left it to private enterprise.

The numerous revolutions and constant wars, without which Peru and Bolivia do not seem to be able to exist, have been a serious obstacle to the development of the industry; though in both countries the cultivation of coca is quite considerable, and is subject to a tax, forming one of the revenues of Government. According to Wedell, this tax yielded to Bolivia, in 1850, about three million dollars. Scherzer also states that the Bolivian Government usually leases the coca grant to the highest bidder, the usual price offered being about 6 reales per cesto. According to the same author, the tax in the provinces of La Paz and Yungas yielded about $260,000, and in the province of Cochabamba $60,000. At the present time, the industry is reported to be again improving both in Peru and Bolivia. [We have no doubt the extraordinary demand for coca all over the civilized world, which has arisen since the beginning of 1885, will very largely increase the area of its cultivation.]

GEOGRAPHICAL DISTRIBUTION.

The true home of coca, as well as the wild-growing mother-plant, has not yet been made out with certainty. De Candolle assumes that it is a native of the western parts of South America, chiefly in Eastern Peru and Bolivia. Poeppig believes that the cultivated coca is derived from *Erythroxylon Mamacuca* Mart., and Kunth refers it to *E. hondense* H. B. K.

In 1750, Jussieu found the coca in the plantations of Yungas upon the Cordilleras of Coroïco (see below). The specimens sent to Europe were described by Lamarck and Cavanillas. Unanué, Tschudi, Martius, Wedell, de Castelnan, Stevenson and others, likewise met only with the cultivated plant.

According to Antonio de Ulloa, coca was reported to grow wild in the high plateaus of Peru. Matthew has likewise reported having collected some wild-growing specimens in the valley of Chinchao in Peru, which lies outside of the region of the cultivated plant. Matthew's specimens were described by Hooker ("Companion to the Bot. Mag.," II., 25). D'Orbigny found the slopes of the valley Rio de Burgas (in the Valle Grande upon the Cerro largo of Bolivia) completely covered with coca shrubs, and believed they had been brought there (in seed) by birds. Wild coca was also found in the forests of the Argentine province of Salta, by M. Villafane. De Candolle received some herbarium specimens collected by André in the valley of Cauca in Colombia, where André reported them to be very common, while Triana denies this.

The region of cultivation follows exactly the trend of the Cordilleras. Beginning south-easterly at 17° or 18° South Lat., it proceeds towards northwest, reaches its centre in Bolivia and principally in Peru, and ends in the valley of Upar between 10° and 11° North Lat., and 73°–74° West of Greenwich.

[The author now enumerates the several districts and localities where Coca is known to be cultivated. We omit these here, but refer the reader to some passages appended below, from the paper of another writer, who has recently visited the plantations of the province of Yungas.]

Attempts to cultivate Coca outside of South America have not been numerous heretofore. It has been grown in Jamaica, W. I., and with apparent success, according to the report of Hooker and Morries. Some specimens have also been sent from Kew to Martinique and Trinidad. It has also been introduced upon Ceylon (see below). In 1854, Dr. Hasskarl brought coca seeds to Java, but was compelled, by an express order of the Medical Director of the Government of the Dutch East Indies, to refrain from planting them, as that officer regarded them "dangerous for the colony." In British India, the plant appears to be likewise in a fair way of becoming naturalized. It has also been reported as

*Abstract of a pamphlet entitled: "Das Cocablatt, Eine pharmakognostische Abhandlung von Dr. Josef Nevinny, Assistent an der Lehrkanzel für Pharmakologie und Pharmakognosie an der K. K. Universität in Wien." 8vo. Wien, 1886. (With the sanction of the author.)

NOTE.—The author has had at his command almost all the existing literature on coca. He does not seem, however, to have seen the account given by Clements R. Markham in: *Peruvian Bark*, 8vo, London, 1880, p. 140, etc. (reprinted in NEW REM., 1881, 145).

being cultivated in Zanzibar, Africa. And finally, it is reported from Australia that the experiments made with coca cultivation at Brisbane had turned out very favorable.

NOTE OF ED. AM. DR.—We append here some passages of an interesting paper on Coca by Dr. Henry H. Rusby, in the *Therap. Gazette* (Jan. 1885). This writer has visited the coca plantations, with a view of studying the whole subject on the spot. Regarding the localities where the best coca is grown, he says:

"For the details concerning cultivation here presented I am chiefly indebted to Mr. Oscar Lohse, one of the most intelligent cultivators in this country, and proprietor of the Finca of San Antonio, two leagues from the tower of Caroica, Yungas.

"The district of Caroica may be fitly considered as representing the remainder of Yungas, and Yungas as representing the principal coca districts of Bolivia. The conditions of soil and climate may be briefly stated. Proceeding eastward from La Paz—itself somewhat more than ten thousand feet* above the sea—for a distance of four or five leagues, we reach the summit of the pass over the easternmost cordillera of the Andes, this cordillera having an average elevation in this immediate district of perhaps sixteen thousand feet. This ridge, always more or less snow-covered, cuts off a large portion of the westward-bound clouds, which are thus either precipitated in the form of rain before reaching the summit, or, arriving there, are deposited in the form of snow, and then returned by means of rivulets to the valleys, chiefly of the eastern slope. It should be noted that in Northern Peru and Ecuador this cordillera is higher than here, so that the eastern slope in those regions is more profusely and regularly watered than here. From this pass, had we a direct road, we could travel in half a day, so steep is the descent, to the banks of the Caroica River, having an altitude of only two thousand four hundred feet. When we have descended to six thousand four hundred feet we should meet with our first coca plantations, and after passing the two thousand foot level we should have left them principally or entirely behind. Within this four or five thousand feet, then, lie the cocales of Bolivia. No description can convey a perfect idea of the steepness of this luxuriant slope. Travel, entirely by riding-animals, is extremely difficult. There are only occasional places where we can readily leave the road, and here plantations are established. The hedge of coffee-plants at the roadside proves on examination to be the uppermost row of a plantation; and as we peer down among the shrubs, we marvel that any one can preserve his footing while cultivating or collecting the coffee. The scenery is of course magnificent, and of a different type, I should think, from that of any other part of the world. The mountains are too young to have lost, to a great extent, their ragged outline, yet softness is imparted by the richness of the vegetation. We stand among the coca-plants, and distinctly see another cocal nearly four thousand feet below us."

Concerning the cultivation of coca outside of its native home, the author appears to have less information at his command than Dr. Nevinny. He says:

"As regards the exportation of the culture of coca, the experiment has been tried, I believe, but once. Several years since, Mr. F. L. Steinart, of La Paz, shipped a small quantity of seeds via London to Ceylon, and during the past season the first products were shipped to London and sold at a high price. Seeds for export should be exposed for several days to a hot sun, so as to rapidly dry the fleshy exterior which thus forms a protection to the germ within.

"It is my opinion that the coca plant is adapted for culture in many countries where it is now unknown. Among the countries where it would be well to experiment with it are Guatemala, Mexico, the East and West Indies, India, Southern China, portions of Africa, and possibly of Italy. It is doubtful if it would grow in any portion of the United States. Requiring an average temperature of at least 70°, the only districts at all suited would be Florida and Southern Texas; and it is highly probable that proximity to the sea coast at so low an altitude would prove fatal. Nor would irrigation prove adequate in these countries possessing a long dry season. The plants must not only have an abundant supply of water at the roots, they must be bathed in a humid atmosphere for the greater portion of the year; but from what I have read of some of the countries above named, I am confident that the plant would there find a congenial home. Jamaica offers especially hopeful conditions."

* The altitudes and measurements are given approximately in English feet. By the Spanish measurements the altitudes are much greater.

Borax as a Remedy for Epilepsy.

THIS is the subject of a paper by Charles F. Folsom, M.D., of Boston, in the *Boston Med. and Surg. Journal.* He publishes some of the details of two cases, and says the only annoyance from the use of borax in doses of ten to fifteen (or more) grains three times a day is a dry, scaly eruption, giving rise to a great deal of itching, but which disappeared after several weeks' use of arsenic internally and oxide of zinc ointment with vaseline externally. Aromatic tinctures given with it prevent nausea, which immediately follows its administration in cold water. The first few doses of borax may cause diarrhœa, which soon ceases. He has seen a number of cases of marked improvement from the use of borax after the bromides had failed to do much good, and, also, many where the alternate use of the two drugs, each for several months, was attended with excellent results. It is best taken an hour and a half after meals.

Conessa Bark and Conessine.

SIX or seven years ago, German missionaries located in tropical Africa sent home specimens of the bark of a tree which they had used successfully in dysentery. Wiggers recognized it as *Cortex Conessi*, or *Cortex antidysentericus* [which was formerly supposed to be derived from *Echites pubescens* Buchan., but has now been recognized by Wulfsberg as coming from *Holarrhena Africana* D.C.]

This bark was examined by A. Faust and A. Abich, who found an alkaloid in it, which was not, however, obtained in a pure state. K. Polstorff and P. Schirmer, having obtained larger quantities of the bark, have now prepared a larger amount of the alkaloid in a pure state. According to these authors, the alkaloid obtained by them is identical with the *conessine* formerly (1858) extracted by Haines from the East Indian conessa bark, and probably also with *wrightine*, obtained (1864) by Stenhouse from *Wrightia antidysenterica*. They propose to retain the name conessine.

The bark contains only about one-tenth per cent of the alkaloid. It is remarkable through the fact that it contains no oxygen, the only other alkaloid known to be free from oxygen being *aribine*. (Curarine would belong here also, but its composition is not quite certain.) Its formula is $C_{16}H_{30}N$. —From *Ber. d. Deutsch. Chem. Ges.*, 1886, 78.

Thalline.

DR. JANSEN has employed sulphate of thalline in the military hospital at Helder, using alcohol and water as a vehicle. This solution has an aromatic flavor and odor, and is perfectly harmless when taken internally. It had a marked antibacteric action, and was used in doses of 1 gramme. In 17 cases of malarial fever, it was of less use in 16 than quinine, serving only to shorten attacks, the disease returning when its use was suspended. Dr. Jansen does not consider the occasions for its use to be numerous.

As an antipyretic, he recommends it only in cases where the temperature is so high as to endanger life; and even then he considers cold baths to be better. If, however, cold baths are contra-indicated, thalline may be of great service, owing to its quick action and the absence of unfavorable effects upon the kidneys or otherwise. It is to be preferred to kairin, which may cause numerous complications and unpleasant results, and which causes but an extremely short period of apyrexia. It is preferable to antipyrin on account of its smaller dose and the fact that the latter, when used by injection, is apt to cause vomiting. Antipyrin is, however, superior to it on account of the longer period of apyrexia which it induces. Dr. Jansen found that a very small dose of thalline would control the high temperature of phthisis. —*Br. Med. Jour.*, from *Weekbl. von het. Ned. Tig. voor Geneesk.*

The Analysis of Commercial Iodine.

G. WEISS received some samples which by appearance might contain 99 to 99.5 per cent of actual iodine, but which on titration showed more than 100 per cent. They were found to be contaminated with bromine to the extent of 3 per cent. For the separation and determination of iodine, bromine, and chlorine, Weiss heats the substance in a current of air with an excess of a moderately strong solution of ferric sulphate, receives the iodine in a strong solution of potassium iodide, and titrates it with sodium hyposulphite. The residue is cooled, mixed with potassium permanganate, heated to 50° to 60°, and treated with a current of air. The bromine evolved is received in ammonia and determined by titration or, preferably, gravimetrically as silver bromide. The chlorine is then calculated from the difference. —*Rep. Anal. Chem.* and *Chem. News.*

Adulteration of Cubebs.

DR. MENIER lately reported to the Medical Society of Nantes that, in examining the purity of drugs dispensed in that city, he had occasion to believe that *Piper Crassipes* was extensively used as an adulterant for cubebs. [This only goes to confirm for France, what is now well known to be a common occurrence in England and in the U. S.—ED. AM. DR.]

The false cubeb-berries have a more grayish appearance, their flavor is different from the real cubebs, and their odor was strong and camphor-like. Treated with a few drops of concentrated sulphuric acid, real cubebs give a carmine color. This test, when applied to spurious cubebs, gave a yellowish-brown color, which is said to be characteristic of *P. crassipes.* Dr. Marais verified the above results, and expresses a doubt whether pure cubebs are to be found in France.—*Gaz. Med. de Nantes.*

Milk-Peptone, manufactured by Mr. Weyl, of Berlin, is described as a colorless powder, soluble in water, and not unpleasant to the taste. Senator commends it for use in phthisis and convalescence from typhoid.

Borate of Manganese.

THE residue left after the preparation of chlorine gas from hydrochloric acid and water, which contains manganese chloride ($MnCl_2$) may be utilized in the following manner, according to E. Dietrich in the *Pharm. Centralhalle.*.

Dilute the residue with 10 parts of water, then add a dilute solution of carbonate of sodium, under stirring, until a small quantity of a pale reddish precipitate is produced. This precipitate will redissolve on further stirring, while ferric oxide and alumina will separate in place of it, in brown flakes. If the first formed precipitate has redissolved, and the liquid has not become light colored, more soda solution must be added.

The separation of iron and alumina may be judged to be complete when a little of the manganese carbonate remains undissolved. [Carbonate of manganese is dissolved by solutions of ferric salts, with elimination of its carbonic acid, and precipitation of the iron as ferric hydrate.]

Now filter the solution and add a dilute solution of borax as long as a precipitate is produced. Collect this, without washing, on a strainer and dry it.

This borate of manganese, when pure and unadulterated [for which purpose oxide of zinc is often used] is in large demand by manufacturers of varnishes and patent dryers.

Hypnone.

THE *Lancet* of March 6th contains the following additional information respecting this new remedy: Drs. Dujardin-Beaumetz and Bardet are the discoverers of its hypnotic properties and the originators of the name "hypnone." Its scientific titles are several, but acetophenone is the one most commonly used. It is a product of the distillation of a mixture of benzoate and acetate of lime, and at ordinary temperatures is a clear, colorless liquid; but a moderate degree of cold converts it into a crystalline mass. It has not yet been manufactured to an extent which permits it to be found abundantly in the market. It has a characteristic odor, which is very persistent, and few patients would take it unless it were inclosed in capsules. Its effects are not quite equal to those urethan, but in cases of simple insomnia, unattended with pain, it acts promptly and is followed by no after-effects. [On Hypnone, see our last number, p. 77.]

Tumbeki, used in Persia as a tobacco and smoked in a water-pipe, is reported by Mr. E. M. Holmes, Curator of the Museum of the Pharmaceutical Society of Great Britain, to be derived from *Nicotiana persica.* It is alleged to be in high repute in Persia on account of its narcotic action, and it is thought to contain more nicotine than *N. Tabacum.*

[Tombeki or tumbeki has been supposed by several previous writers to be a species of Lobelia. For instance, by Adolph Steege, of Bucarest, in an article on Hashish, in *Buchner's Repert.* (Nürnberg), Vol. 87 (1845), p. 228. But it is simply a species of tobacco, and is often smoked in conjunction with remedial agents, as a means of medication. It is more correctly spelled *tânbagû* (pronounced *tâmbagû*), and is not unlikely identical, etymologically, with tobacco. It is usually smoked in the nargileh or water-pipe (nâr-gîleh means originally "cocoa-nut," and then, because such a nut was originally used to hold the water, it became a designation for the water-pipe. Another name for this pipe is *ghilyân*). ED. AM. DRUGG.]

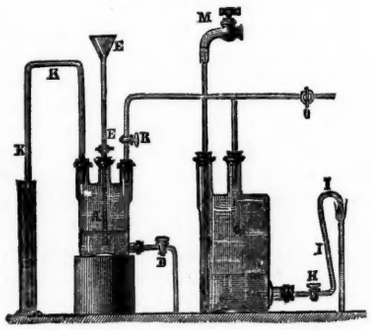
Milk as a Vehicle for Iodide of Potassium.

DR. E. L. KEYES, in *The New York Medical Journal,* speaks highly of milk as a vehicle for the administration of iodide of potassium. He says that in cases where a large quantity of the drug has to be given, he has found that the stomach does not rebel when milk is used as the vehicle. Ten grains or more of the iodide in a gill of milk make a palatable drink, and impart only a mild metallic taste to the fluid, which most patients find not at all disagreeable.

APPARATUS FOR THE CONTINUOUS PREPARATION OF OXYGEN GAS.

A. BIDET uses the apparatus here described for the continuous preparation of oxygen gas from chloride of lime and oxide of cobalt.

The oxide of cobalt is put into the vessel *A*, and a solution of chloride of lime is added to it through the funnel *E.* The liberated oxygen escapes through the tube (containing stop-cock R), and while the stop-cock O is open, passes along the horizontal tube to wherever the gas may be conducted. When *O* is shut off and the stop-cock at *M* is opened, the generated gas will pass into the vessel *g*, and drive a corresponding volume of the water out through *M.* By closing *M* and opening *O*, the current of the gas through the horizontal conduit pipe may at any time be restored. When the



Bidet's apparatus for preparing oxygen.

charge in the flask *A* is exhausted, the stop-cock *R* is shut off and the contents allowed to run out through *D*, after which it is only necessary to add a fresh quantity of solution of chloride of lime to the oxide of cobalt contained in the flask. The tube *K* dips into a cylinder full of water of such height that the level of water in the narrow cylinder is higher than that in the flask. *K*, therefore, acts as a safety-tube when the pressure in *A* becomes too high.—*Chem. Zeit.*, 1886, No. 6.

[Note by ED. AM. DR.—As described by the author, the above process takes place without heating. The oxide of cobalt meant is no doubt the cobaltic oxide or sesquioxide of cobalt, Cr_2O_3. Heretofore it has been known that a solution of chloride of lime gives up oxygen when a few drops of solution of chloride of cobalt are added to it and the mixture heated to about 176° F., when oxide of cobalt is precipitated and oxygen escapes abundantly. The oxide of cobalt acts, no doubt, as a carrier of the oxygen, taking it from the chloride of lime and releasing it immediately again.]

Chloropeptonate of Iron is said to be a combination of a peptone and perchloride of iron which undergoes no change by gastric juice or the alkalies of the blood. It is absorbed and assimilated just as it is taken, and causes higher temperature, loss of flesh, more copious excretion, improved appetite and improvement in the character of the blood.

Uses for Parchment Paper.

DR. T. M. STRONG reports the following uses for parchment paper:

(1) To take the place of oil-silk—since it holds heat and moisture better than the silk, is much more agreeable to the patients, and is quite inexpensive.

(2) In place of oakum, etc., as a vehicle for applying poultices. The paper will stand washing, the same piece having been used as many as four times.

(3) As an impervious dressing or roller bandage, applying it wet, either in water or in an antiseptic solution. It dries quickly, and in doing so adapts itself to all unevenness of surface.

(4) In place of rubber blankets. This is especially serviceable. It keeps freer from foul odors a longer time than the rubber, and can be freely washed. Those who have used the rubber blanket know, even with the best of care, how soon the rubber begins to peel off, thus leaving a spot difficult to keep clean, and soon the blanket is useless. The cost of the parchment blanket is only a few cents, and must be laid on a smooth surface.

Diseased Eggs.

DR. D. F. WRIGHT, in the *Bulletin of the Tennessee State Board of Health,* says that soon after it became the practice to transport eggs in large quantities and to long distances by railway trains, it was found on their arrival that adhesion had taken place between the membranes of the yolk and those of the shell, so that the yolk could not be turned out of the shell unbroken. On examination by experienced pathologists this was found to be the result of true inflammation; the material of the adhesion was found to be precisely the same as that of the plastic exudation in inflammation of the lungs or bowels. It will at first seem absurd to speak of inflammation in such an unformed mass as an egg; but this arises from our forgetting that, structureless and unorganized as it seems, the egg, even when fresh laid, is a living being, and capable of disease from external causes. The cause of this inflammation is undoubtedly the shaking and friction from the motion of the cars, and it cannot but render the egg more or less unhealthy, as the products of inflammation can never be as salutary in food as those of healthy growth.

Long Tubes in Nursing Bottles.

A CORRESPONDENT of the *Therapeutic Gazette,* writing from Berlin, says: "In the Children's Department of the University Hospital of Berlin, there is a collection of some 300 nursing-bottles of various sizes and shapes, all provided with a long rubber-tube, which incloses a piece of litmus paper colored red. No commentary is needed. It is quite clear that the presence of lactic acid in the tube suffices to explain many obscure disorders of the alimentary tract, for which physicians are often at a loss to find satisfactory explanation."

Gangrene following the use of Iodine Collodion.

THE application of iodine collodion to a frost-bitten finger last year, in Vienna, led to the loss of the finger, and suicide of the physician from chagrin on account of the unfortunate notoriety given to the case. Dr. Vogelsang, of Biel, now reports a case in which iodine collodion painted over a large surface was followed by gangrene and sloughing of the skin. In another case its application over a gland, following an application of tincture of iodine, resulted in a bad ulcer.—*Med. Chir. Rundschau.*

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EDITORIAL.

WE have given all the essential information regarding lanolin in our March number, page 43. It has been very highly recommended as a base for ointments by Prof. Liebreich and others, and is already in considerable use all over Europe and in this country.

Like all new products, however, it is likely to be abused, and it will require some time to ascertain its proper sphere of utility. Being so rapidly absorbed by the skin, the manufacturers recommend that it be mixed with a small proportion of lard or cerate, to retard its absorption. A circular has recently been issued in which are given a large number of working formulæ for various ointments made with vaseline. We notice among them several that, on theoretical grounds, appear to be very inappropriately made with lanolin. Every drug that is presented to the skin in an ointment is not intended to be absorbed. Indeed, some would be perfectly useless if absorbed, and others would be highly injurious. Take, for instance, the Pulvis Arsenicalis Cosmi. This is intended purely as a local caustic, and the less tendency there is given to the accompanying ointment to sink into the skin the better it would seem to be. It must not be forgotten that lanolin differs from other ointment bases in this, that it contains a large percentage of water. This water is certainly capable of dissolving some of the arsenious acid, and when absorption takes place it is natural to expect serious results. it is true, we have no proof as yet, through actual experiments, that our surmise is correct, but we are certainly justified in warning against the incautious use of this substance. Similar objections will probably be found justified in such lanolin ointments as are made with red oxide of mercury, nitrate of silver, pyrogallic acid, white precipitate, naphthol, etc., etc., the effects of all of which are desired to be purely local and superficial.

On the other hand, when the constitutional effects of a drug are required, as, for instance, in the case of metallic mercury, lanolin appears to be very much in its place.

It is probably not so much as a base for ointments containing active medicinal substances, but as a bland application *per se*, that lanolin will be found beneficial. However, only time and further experience can settle this question. Meanwhile, it is advisable to be cautious in combining with it active substances, particularly such as are soluble in water.

ONE of our friends has handed us the following prescription, which had recently been presented at his counter:

℞ Chloroformi.....fl. ʒ iss.
Olei Tiglii.....gtt. i.
Glycerini.....fl. ʒ i.
S. To be taken at one dose.

He inquired of the patient how it was to be administered, and ascertained, incidentally, that it was to be used as a remedy for tape-worm. The employment of chloroform for this purpose had not before come to his knowledge, and as he did not know the prescriber, and was unable to ascertain anything regarding his professional standing, and, moreover, failed to find his name in the medical directory, he made inquiries among his friends, but did not succeed in obtaining the desired information. As he was unwilling to be made to share any responsibility with a person unknown to him, he finally declined to put up the prescription himself, giving a plausible excuse to the person presenting it, and referring him to the pharmacist whose name was printed on the physician's prescription.

We are now asked to state: 1, whether the dose of chloroform directed in the above prescription is proper and safe; 2, whether the dispenser was justified in declining to put up the prescription.

Regarding the first point, we would say that the older authorities all agree in naming comparatively small doses of chloroform as proper to be administered by the stomach, and none of these make mention of its effect in tape-worm. It is probable that a pharmacist will consult, on questions of therapeutics and doses, one of the dispensatories, before any other work. The *U. S. Dispensatory* (latest edition) speaks of the effect of a dose of 15 to 25 drops (that is, 4 to 6 *minims*, or 0.24 to 0.38 C.c.) as "inducing only gastric symptoms, chiefly due to its irritant properties, etc." It also says that "taken in doses of 1 to 2 fluidrachms, it produces a narcotism similar to that seen when it is administered by inhalation, the narcotism, however, developing and passing off much more slowly than in the latter case. This is all the U. S. Dispensatory says about the size of doses of chloroform taken by the mouth, and a careful pharmacist will probably not risk dispensing a larger dose without further inquiry, on the order of a prescriber unknown to him. The *National Dispensatory* gives no dose whatever for the internal use of chloroform. It mentions its use by inhalation and hypodermic injection, and only speaks of dangerous doses, viz.: "A large number of cases of poisoning by chloroform taken into the stomach have been recorded. In one case of recovery, a weakly man had swallowed three ounces of it. Doses of half an ounce or more produce general convulsions, insensibility, dilated pupils (etc., etc.)." This authority, therefore, would not encourage the pharmacist either, to dispense a large dose of chloroform under the circumstances above mentioned. The *Companion to the U. S. Ph.* (by Oldberg & Wall) gives the internal dose at 2 to 30 minims. The new British Pharmacopœia gives the dose at 3 to 10 minims. The German Pharmacopœia does not include it in its table of maximum doses. Hager says, in *Pharm. Praxis*, I., 865 (transl.): "The cautious pharmacist will regard 2 Gm. (30 grs. or about 23 minims) as a very high dose, which may only be exceeded when the physician adds the sign: !"

These and other authorities that might be quoted evidently justify the pharmacist who is not in possession of the recent medical literature, in declining to dispense larger doses, unless he knows the prescriber, or has some assurance that he (the dispenser) will be held blameless in case of bad results.

However, the information afforded by the above authorities requires to be supplemented by facts more recently established. That chloroform has been occasionally used as a remedy for tape-worm, as far back as 1869 (see *Ther. Gaz.*, 1886, p. 22), and even earlier, is quite certain. Of late, it has been used to a considerable extent for the same purposes, and most medical journals will be found to have given reports of cases (see the index to last year's volume, in each case). While quite a number of physicians still adhere to it, a great many declare that they shall cease to use it, as they either failed to expel the worm, or noticed disagreeable symptoms from its use. That a dose of 1½ fluidrachms of chloroform, properly diluted with glycerin, will not be dangerous to a healthy adult appears to be almost certain from the recent reports. Yet, in the light of the authorities generally accessible to the pharmacist, it would be a dangerous dose. Alexander Winter-Blyth reports that the *smallest* dose that has proved fatal *to an adult* was 15 Gm., which he says is nearly 4 drachms ("Poisons: Their Effects and Detection." *Wood's Library*, 8vo, New York, 1885, vol. i., 127). As the author means drachm-*weight*, he is about correct. But if *measure* were meant,

then 15 Gm. of chloroform will only measure 174 minims, which is *not quite three fluidrachms*.

Regarding the second point, we are decidedly of the opinion, that, under the circumstances, the pharmacist was justified in declining to put up the prescription. As we are informed, he failed to find the physician's name in the medical directory, the only official list at his disposal to ascertain the standing of any regular practitioner. It would be a risky thing for a pharmacist to put up every prescription brought to him and signed by a person unknown to him. Should bad results follow, a coroner's jury would censure *him* as well as the prescriber, and if the latter could not be found, would censure him the more.

We do not want, however, to be understood as denying the physician the right to prescribe any size doses at his own responsibility. When the prescriber is known to the pharmacist, and proper steps have been taken to hold the dispenser blameless in case of accidents (which may be done in a variety of ways, as for instance, by the prescriber attaching a note stating that he has written for such and such a quantity designedly, or by giving the quantity both in figures and in words, etc., etc.), the physician will never meet with a refusal from the pharmacist.

Dr. de Vrij recently published a paper (in *Nieuw Tijdschrift voor de Pharm.*, March, 1886), in which he gave the results of examinations of several brands of English sulphate of quinine, from the manufacturers of greatest repute, namely Howards & Sons, Thos. Whiffen. It is very unfortunate that Dr. de Vrij relied exclusively upon the optical test, since it is well understood that this cannot always be relied on, since there may be circumstances when the test will actually appear to indicate the presence of cinchonidine, when there is, in fact, none whatever present. He found Howards' quinine to contain 9.508 per cent of sulphate of cinchonidine, and Whiffen's 6.942 per cent.

In the *Pharm. Journal* of March 20th, Mr. A. J. Cownley criticises de Vrij's method of examination and the results obtained thereby. He gives his own results based upon a method of assay which would detect much less than 1 per cent of sulphate of cinchonidine (Kerner's test).

Mr. Cownley's results show that some of the samples he examined contained no cinchonidine whatever, while the majority contained all the way from traces to 5.10 per cent, there being, of course, some brands of sulphate of quinine on the market [which are made from barks rich in cinchonidine] containing a small percentage of cinchonidine. On the other hand, there are also some very poor lots of commercial sulphate of quinine on the English market, as shown by Mr. Cownley, which contain from 5.92 up to 9 per cent cinchonidine sulphate. One sample even contained 13 per cent. But, according to Mr. Cownley, these brands are derived from other houses, and not the two renowned firms mentioned above, whose products were examined by Mr. Cownley.

Prof. de Vrij has, since then, published an additional article (*Nieuw Tijdsch. v. d. Pharm.*, 1886, 35), in which he reports the results of his examination of three French quinines: 1, that of Pelletier, Delondre et Levaillant; 2, that of the Pharmacie Centrale; and 3, that of Thomas. By chemical test he found these to contain

1. 0.097 Gm. cinchonidine.
2. 0.225 Gm. "
3. 0.340 Gm. "

But by optical test, upon which he lays the greater weight, he obtained from them:

1. 5.954 Gm. sulphate of cinchonidine.
2. 9.072 Gm. " "
3. 12.448 Gm. " "

which results will certainly elicit an acrimonious remonstrance from the French manufacturers.

Mr. E. M. Holmes recently exhibited (before the Pharm. Society) a specimen of the tree which produces the West Indian "oil of sandal wood." As no species of Santalum is known to exist on the American continent, he suspected that the West Indian oil was derived from some other plant, and he was confirmed in this surmise when he received the specimen of the tree, which appears to belong to the family *Rutaceæ*, but which could not be definitely identified, owing to the absence of flower or fruit. It is quite certain, meanwhile, that the West Indian sandal-wood oil is *not* derived from a species of *Santalum*. With respect to the medicinal value of the West Indian oil, which is only about one-third of the value of the genuine East Indian sandal-wood oil, Mr. Holmes was informed that in England and Australia it was rejected by retail druggists, but that it was *sold, to a considerable extent, in the United States*. It would be interesting to ascertain the truth about the production and disposition of the product. The West Indian oil appears on the lists of prominent dealers in essential oils in this country, and is sold for but little more than one-half of the price of the East Indian oil. It is probable that most or all oil of sandal wood used here medicinally in diseases of the urinary passages is the West Indian variety, and that the East Indian is chiefly restricted to perfumery.

W. Lascelles-Scott has published (*Brit. and Colon. Drugg.*, March 6th) the results of his preliminary investigation into the nature of hopeine, which has lately made such a stir (see our last number), and he finds that it agrees in all respects with morphine. Certainly, the reactions mentioned by the author, which even extended to physiological tests and to the preparation of the artificial alkaloid apomorphine, seem to leave no room for doubt.

In our last issue (p. 69), we gave a new test for the purity of cocaine, communicated to us by Mr. Alexander Boehringer, and taken from European journals. As Mr. Boehringer's letter reached us only just before going to press, there was no time to refer to the original source, so as to describe the text more in detail. We have, in the mean while, consulted the original, and have also had occasion to see the test applied upon cocaine in different stages of its manufacture, and upon crystallized and amorphous cocaine, and can now speak of it from our own experience.

Pure crystallized or crystallizable cocaine, when treated with very dilute solution of permanganate of potassium, is thrown down as permanganate in form of a rose-colored precipitate, free from any shade of brown. When the precipitate is treated with distilled water, it redissolves, forming a clear violet or rose-red solution, which keeps bright and without any signs of decomposition for a considerable time (at least one hour; generally two or more hours). If the cocaine was the amorphous variety, or was mixed with the latter or with any other foreign substance, the precipitate produced by permanganate is not rose-colored but a muddy brown, due to the separation of manganic hydrate, and, on dilution with water, this does not, of course, redissolve, but produces a dirty-brown, opaque liquid, which soon becomes almost colorless after the manganic hydrate falls to the bottom. In carrying out the test, proceed as follows:

Weigh out 0.010 Gm. ($\frac{1}{6}$ gr.) of the sample of cocaine hydrochlorate to be examined, put it into a small test-tube, and add three drops of water. Agitate gently until it is dissolved; then add, by means of a pipette, four drops of a clear solution of permanganate of potassium, containing 0.3 per cent of this salt. This will produce a precipitate, varying from a pure, pale rose-color, in the case of the pure cocaine, to a reddish or brownish rose-tint, in the case of the less pure, or to a pure brown color, in the case of the amorphous cocaine. Now add to the contents of the test-tube two C.c. of distilled water and agitate. In the case of pure cocaine hydrochlorate there will result a fine rose-red solution which is entirely free, or nearly so, from minute flocculi or crystalline needles, though these will show themselves after some time, without, however, altering the tint of the solution for at least one hour. In the case of a sample containing only a moderate amount of the amorphous alkaloid, the rose tint will be less handsome, and flocculi will appear in it sooner. In the case of the amorphous salt, or when the latter predominates, there will be no rose-tint at all, but a brown mixture, which will soon separate into a brown precipitate and nearly colorless liquid.

As it is not always easy, when dealing with a cocaine salt containing only a moderate proportion of the amorphous alkaloid, to judge the character of the rose tint as produced by the test, without a chance of comparing it with

a standard, it is always best to make the test upon a sample of crystallized cocaine hydrochlorate of known purity at the same time. By comparing the appearance of the two precipitates, and that of the solutions produced by the addition of water, a sure conclusion may be reached regarding the purity of the sample.

This test was originally proposed by Dr. F. Giesel, in the *Pharm. Zeit.* He recommends to dissolve 1 centigramme of cocaine hydrochlorate in 1 or 2 drops of water, and to add about 1 C.c. of a 0.3 per cent solution of potassium permanganate. This produces a violet precipitate, causes only traces of manganic hydrate to be separated at ordinary temperatures, and on boiling no odor of bitter almonds is developed.

In our experience, the above test is rendered still more delicate by adopting the proportions given by us. The smaller quantity of permanganate added permits the more ready recognition of the true tint of the solution. Moreover, when the test-tubes have stood at rest until the test-liquids have become colorless, the addition of a further drop of the permanganate solution will produce the former reaction in a still more handsome manner. The boiling is not necessary, since any sample which produces the odor of bitter almonds when thus boiled, exhibits its inferiority already by the muddy tint of the color test.

The sulphuric acid test, upon which main reliance has been based heretofore, is very useful, but not always reliable. Pure cocaine and its salts certainly produce a colorless solution with concentrated sulphuric acid, and this solution does not begin to acquire a tint for a long time, if protected from dust, etc. But the *amorphous* cocaine does not necessarily produce a deep-colored solution with the acid, as has been asserted. We have in our possession samples of the amorphous cocaine which, after being dissolved in strong sulphuric acid, do not show more than a pale yellow color after 18 hours. On the other hand, we have samples of cocaine hydrochlorate containing both the crystalline and amorphous variety, mixed, which gives a decided reddish tinge with the acid after a very short time (less than fifteen minutes).

THE following, known as the "House Bill No. 1,621," has been introduced to the House of Representatives by Hon. Darwin R. James, and is now before Congress.

"Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, that residents of each State and Territory may, within the other States and Territories, and within the District of Columbia, solicit from dealers or merchants orders for goods and merchandise by sample, catalogue, card, price-list, description, or other representation, without payment of any license or mercantile tax."

The bill being before the Committee on Commerce, was argued by representatives of the Traders' and Travelers' Union on the 1st and 2d of April, when petitions were also presented with signatures of nearly 5,000 trading manufacturers and merchants of New York, Philadelphia, Baltimore, New Orleans, Chicago, and Boston, who employ about 25,000 travelling agents and do a business amounting to something like $2,500,000,000 yearly.

New Jersey Pharmaceutical Association.

THE 16th annual meeting of the N. J. Phar. Association will be held at the Continental Hotel, Broad St., Newark, N. J., Wednesday and Thursday, May 19th and 20th at 10.30 A.M. each day. A full attendance of members is earnestly requested. The local pharmacists will spare no pains in making the meeting a grand success, pharmaceutically and socially. Ample space for manufacturers and dealers in pharmaceutical preparations and druggists' sundries to exhibit their products.

For particulars address Alex. M. Lennett, Local Secretary, 77 Clinton Ave., Newark, N. J. Yours, etc.,

R. J. SHAW, *Cor. Sec'y.*

A CORRESPONDENT writing from Allison, Decatur Co., Kansas, says that the place offers superior advantages to a druggist, a good business man being likely to find a good trade there at once. A physician is also needed. The writer also remarks that "we control a rich, wide territory with splendid crop prospects."

As no place bearing this name is mentioned in the edition of *Martin's Druggist's Directory* which we possess, we infer that the place is of recent growth.

Charles H. Zeller, assistant to the Professor of Pharmacy in the Philadelphia College of Pharmacy, died suddenly on the 7th of April, at the age of twenty-six years. He was an alumnus of the class of 1880, and held his position since his graduation.

The Pharmacie Centrale.

THERE are in France 8,208 chemists and druggists, of whom about 900 are in Paris. These are united in one body, forming an association known as the *Pharmacie Centrale.* This society does not sell drugs to either the public or physicians, but only to shareholders and chemists and druggists at home or abroad. It does not manufacture special articles which have to be advertised, but only drugs used in current practice. It produces 300,000 kilogrammes of pharmaceutical products, 300,000 kilos of chemicals, and 250,000 of powdered drugs. The factory is at St. Denis, and occupies a considerable area. The machinery is brought to the greatest degree of perfection, and is worked by a 100 horse-power engine; 250 hands are employed. M. Genevoix, the principal director, devotes all his efforts to the establishment, and has held the office for some years. At the Antwerp Congress, a certificate of honor was awarded to the Pharmacie Centrale.—*Br. Med. Jour.*

Rubus Chamæmorus.

(CLOUD-BERRIES.)

DR. S. A. POPOFF, a Russian physician, has recently experimented with this drug which has for a long time been used by Russian peasants as a diuretic. A paper on the diuretic properties of the berries as used in cases of hydrocephalus, published (in German) by Dr. Trinkovski, in 1856, was the first account of it to be found in medical literature. Dr. Popoff has used it in the form of infusion, decoction, and tincture, and has separated from it an acid which he believes to be the active element. Experiments on animals seem to cause no increase in arterial tension, and but slight disturbance of the heart's action, but the quantity of urine discharged is increased.—*Lancet.*

Disinfection with Corrosive Sublimate.

KOENIG recommends bichloride of mercury as a disinfectant for rooms. The windows, chimney, etc., are carefully closed up, and 50 Gm. of corrosive sublimate are placed in any suitable vessel, which is then set on a pan of burning charcoal, the operator immediately leaving the room and closing the door. After about four hours, he re-enters with a cloth over his mouth and nose and throws open the windows. After some hours of ventilation, a slight fumigation with sulphur is made to follow, which neutralizes any remnants of mercury. This process not merely disinfects, but destroys all kinds of vermin. [The author does not give the exact dimensions of the space for which 50 Gm. of corrosive sublimate should be taken, but merely states that this is the quantity for an ordinary sized room.—ED. AMER. DRUGG.]—*Journ. de Pharm. et Chim.* and *Chem. News.*

Nostrum Traffic.

THE unrestricted traffic in patent medicines is a disgrace to our civilization; communities and States are up in arms against alcohol as a beverage in all its forms except the one most detestable and villanous. Introduce some vile ingredient into the alcohol, christen and label it as a patent medicine, and lo! it is robed in innocence and welcomed to the homes of the righteous. A poison can be legally sold as such in most States only with a flaring label of warning, and after double or triple forms of registration by a competent pharmacist. Put it up as a patent medicine, decorate it with a seductive title and a rainbow wrapper, and at once it is beyond the restraints of regulation, and may be sold by street-hawkers, slaughter shops, anybody and everybody, without let or hindrance. Where is the consistency, the intelligence, the justice in this strange partiality for the nostrum curse?—*Western Druggist.*

Explosive Mixture.

A FRENCH military apothecary, J. Raby, reports from Oram (Algiers), that several laborers, who had been bitten by insects and had become affected by bad sores, were treated with a 5-per-cent solution of carbolic acid, the wounds were cauterized by nitrate of silver, and finally sprinkled with iodoform. On applying the latter it melted and was completely decomposed. Raby then mixed the ingredients with a little water, and the consequence was a real explosion, accompanied by the copious evolution of nitrous fumes. Iodoform and nitrate of silver, when mixed, rapidly decompose each other; and this decomposition is much intensified by the addition of carbolic acid.—*Pharm. Post.*

Shaving Cream.

A PREPARATION which has simply to be smeared on the skin is prepared as follows:—

Curd Soap	8 oz.
Almond Oil	2 "
Glycerin	1 "
Spermaceti	½ "
Carbonate of Potassium	½ "
Water	16 "

Cut the curd soap into shreds and dissolve it by the aid of a water bath in 14 ounces of water. Dissolve the spermaceti in the almond oil, and while warm mix it with glycerin, potash, and remainder of the water; transfer to a warm mortar, gradually and steadily incorporate the warm soap solution, and continue to stir until a smooth paste is formed. With this incorporate a suitable perfume.—*Chem. and Drugg.*

Notes on Essential Oils.*

Oil of Almonds, bitter.—Most of this is distilled, not from bitter almonds, but from peach kernels, chiefly imported from Syria. At present, nearly every order calls for oil deprived of hydrocyanic acid.

Artificial oil of bitter almonds, now made in large quantities in the aniline industry, has not acquired much favor either in perfumery or in the manufacture of liquors. Where the question of cost is important, perfumers or soap-makers use oil of mirbane. For all refined purposes the natural oil is preferable.

[The term "*artificial oil of bitter almonds*" has often been carelessly used by writers to designate very different products. A brief note on the subject will be useful to many of our readers:

1. *True Oil of Bitter Almonds* is an aldehyde of the aromatic series: $C_6H_5.COH=C_7H_6O$. This exists in nature, in various plants or parts of plants, being produced when amygdalin and emulsin are present, together with water. It is, however, also possible to prepare it artificially. We have, therefore, two varieties of the true oil.

a. *Natural Oil of Bitter Almonds*, which may be prepared from bitter almonds, or cherry-laurel leaves, or peach kernels, apricots, or cherry kernels, or any vegetable products containing amygdalin and emulsin. The natural oil has a milder and finer flavor than that to be mentioned next.

b. *Artificial Oil of Bitter Almonds.* Though artificial, this is nevertheless identical with the true oil. (We use the word "true" here in this sense, that we wish to make a distinction between these two varieties of "true oil of b. a." and the altogether distinct substitutes next to be mentioned.) Oil of bitter almonds is, chemically, the aldehyde of benzol, hence called *benzaldehyde.* It may be prepared artificially in many ways, not only from benzol, but even from toluol, by reduction. The *natural* oil in its crude state contains nearly thirteen per cent of anhydrous hydrocyanic acid, and is, therefore, exceedingly poisonous, unless completely deprived of this substance. The artificial oil never contains any hydrocyanic acid naturally. But it has been stated that, when the natural oil is deprived of the hydrocyanic acid, it is liable to be more rapidly oxidized in the air and to keep less long, and the artificial oil is said to be purposely mixed with hydrocyanic acid for the same reason. It seems, however, that it is nevertheless practical to put on the market oil of bitter almonds entirely deprived of hydrocyanic acid.

2. *Imitation Oil of Bitter Almonds.* There are two varieties, neither of which have any close relation, chemically, with the true oil, except that they are likewise derivatives of the benzol or toluol group.

c. *Nitrobenzol.* This is benzol in which 1 atom of hydrogen is replaced by nitric peroxide, or nitrogen tetroxide: N_2O_4 or NO_2. Its composition is, therefore: $C_6H_5.NO_2$. This is known in trade as *oil of mirbane, mirbane-essenz*, etc. It resembles oil of bitter almonds closely by its odor, but differs from it in other physical and chemical properties.

It is *poisonous*, and should therefore *never* be used for flavoring medicines or articles of food or drink. It is now known that its poisonous effect has something to do with the fact that it cannot be oxidized to an acid in the organism, while this is possible in the case of the following:

b. Nitrotoluol. This is toluol, in which 1 at. of hydrogen is replaced by NO_2., viz.: $C_7H_7.NO_2$; or $C_6H_4.NO_2.CH_3$. This has an odor nearly resembling the preceding, and is therefore likewise used as a substitute for oil of bitter almonds. While nitrobenzol, when pure, solidifies on cooling to +3° C. (37.4° F.), nitrotoluol does not freeze even when cooled to −20° C. (−4° F.). It is stated to be non-poisonous [?]; when taken internally it is converted into some variety of nitro-benzoic acid. As it is difficult for any but a professional chemist to distinguish between these two imitations of oil of bitter almonds, *it is best to regard them both as poisonous*, and to never use them for internal administration.]

Sch. & Co. lay great stress upon the fact that their oil of mirbane easily crystallizes near the freezing-point, which is a criterion of purity.

Oil of Anise.—The production of aniseed in 1885 has been 25 to 30 per cent less than in 1884, and though prices have not advanced in proportion to this deficit, yet they have considerably stiffened, and are likely to advance still more.

During 1885, about 700,000 kilos of Russian aniseed have been distilled at Leipzig. Other brands of anise yield oils which do not appear to be so well liked. This is particularly the case with East Indian aniseed (*not* star-anise), which has recently been offered in the market.

Apiol.—A new source of parsley seed has been made available in India, and it would be easy to produce apiol on a larger scale, if the demand should increase.

Oil of Balsam of Peru, so-called, is really not an essential oil, but chiefly cinnameïn, the characteristic liquid, odorous, principal constituent of balsam of Peru.

[*Oils of Bergamot, Lemon, and Orange.*—Contrary to what had been predicted by interested parties a short time ago, the price of these oils has experienced a sudden drop during the first week in April. It is believed that a further decline will occur in a short time.]

Oil of Cajuput is constantly losing in importance. The total production in 1871 was estimated at 4,000 gal. During recent years, the amount allowed to reach the market has been adjusted to the demand, so as to prevent a further reduction of the price.

Most of the oil is produced in the island of Celebes.

Oil of Camphor, Japanese.—It had already been announced by Schimmel & Co., in their last September report, that the Japanese oil of camphor contains more or less of *safrol* ($C_{10}H_{10}O_2$). This statement has excited a lively interest among scientists, since the presence of this body in oil of camphor had previously escaped all those who studied the substance. The special facilities available in Schimmel & Co.'s factory, and the accumulation of by-products, present in small proportions only, has enabled the chemist of this firm to ascertain that Japanese oil of camphor also contains *eugenol* ($C_{10}H_{12}O_2$), though in such minute quantities that it will be practically impossible to extract it on a commercial scale. Wallach, when examining oil of camphor (*Liebig's Ann.* 227, 296), found a large proportion of *dipentene* in that portion which boils at 180°–185° C. Hence, up to the present time, the following bodies have been recognized with certainty as constituents of oil of camphor.

1. *dipentene*, boiling at 180°–185° C.
2. *camphor*, " " 205° "
3. *safrol*, " " 232°–234° "
4. *eugenol*, " " 245°–247° "

But there are certainly still other bodies present. It is already known that there is another terpene ($C_{10}H_{16}$) in the oil, boiling below 180° C. Besides, it contains a body which must have its boiling-point between 230° and 235° C., but which has not yet been obtained free from safrol. Schimmel & Co. state that this body behaves like terpin, since it is converted, by boiling with dilute acids, into hydrocarbons boiling between 172° and 185° C. The presence of *terpinol* ("terpineol") in the resulting product is rendered probable, to judge from the odor, but could not yet be demonstrated chemically. Finally, there is a constituent which boils at about 250° C. It has not yet been obtained in a pure state.

Hikorokuro Yoshida has recently published the results of his studies on oil of camphor, and announced it to contain:

7% terebenten,	boiling at 156°	C.
20% citren,	" " 172°–173°	C.
22.8% camphor,	" " 205°	C.
50% camphorogenol,	" " 213°–213°	C.

Schimmel & Co. have absolutely failed to find the last-named body, and suspect that Yoshida experimented with oil of an entirely different source.

The *light oil of camphor*, obtained during the distillation of the crude oil, has been largely used in the manufacture of varnishes, as it costs less than oil of turpentine. According to the statements of competent authorities, it is not only suitable for mixing with boiled linseed oil, but also for the solution of copal and other resins. When inhaled, it does not produce the disagreeable or injurious effects which ordinary oil of turpentine often produces. The wholesale price of this oil, at the factory, is 42 marks ($10.42) per barrel of 150 kilos (322 lbs.).

Oil of Cassia.—Increased inquiry has recently been made for *filtered* oil; and certain large perfumers use the rectified oil exclusively. Schimmel & Co. state that the loss during rectifica- is 15 to 20%.

Oil of Cedarwood.—The ordinary American oil of cedar is unsuited for the purposes of perfumery. It is obtained as a by-product in lead-pencil works, the vapors given off by the cedarwood during drying being conducted through condensers, where the oil is condensed. It consists only of the lower boiling portion, while the real valuable part—which is the higher-boiling fraction—remains in the wood.

Oil of Cedar, Virginia.—Schimmel & Co. appear to have had the same experience in Europe, which we have had here several times, namely, that the name Virginia Cedar is sometimes supposed to denote a species of true cedar, while it really means a species of Juniper.

Oil of Citronella.—The annual production of this oil in Ceylon, during the last three years, is estimated at 9,000 cases. In addition to this there were quite considerable quantities produced along the Malabar coast and the Straits settlements. The New York house of Schimmel & Co. has contracts for the current year for not less than 3,000 cases. [This oil is largely used by soap-makers, chiefly in the finer grades of yellow-soap, or honey-soap.]

Oil of Cloves.—Some eleven years ago there was only one kind of oil of cloves known in Germany, and this was all distilled in Hamburg out of clove-stalks. To-day this product plays only a very inferior rôle. Good Zanzibar cloves yield about 18% of oil.

[Cloves and similar spices may be imported duty-free in Germany, for the purpose of distilling off the essential oil; but the importation and manipulation is under strict surveillance by the officers of customs. The residues from the distillation cannot be utilized, but must be destroyed in presence of the customs officers. Hamburg is at present yet a free port, situated outside of the rayon of the German customs [though in a short time it will cease to be so], and large quantities of cloves and other species are there distilled for their essential oils. But as the process is carried on outside of the

* Abstract from the circular of Schimmel & Co., Leipzig. April, 1886.

custom lines, it does not need the supervision of customs officers, and the manufacturers, therefore, are at liberty to dispose of the residues as they please. It is not to be wondered at, therefore, that a most lucrative business is there carried on with spices partly or wholly deprived of oils. One Hamburg firm even had the audacity to offer clove-stalks for sale, with the agreement to take back the exhausted stems at a certain figure.]

Oil of Copaiba.—This appears to be altogether prepared by the New York house, since New York is one of the principal markets for the Para balsam. The oil is colorless, like water, and is used not only medicinally, but very largely also as an adulterant of other essential oils. Its presence may be detected, after some practice, by the odor—particularly on comparing the suspected oil with a sample of absolutely genuine oil.

Oil of Cubebs.—New York being now the central market for cubebs, and the business in this drug being in the hands of a few monopolists, it is impossible to either give a binding quotation or to make any reliable predictions as to the future market. It may, however, be expected that the production of cubebs, which has greatly diminished during the last few decades, will increase again in consequence of new plantations started in Ceylon.

Oil of Elemi.—Schimmel & Co. offer, for the first time, the essential oil prepared from Manila Elemi. It has a strong and agreeable odor, resembling fennel, mace, and dill, and is comparatively cheap. It has the spec. grav. 0.880, and its larger portion boils at 172° to 176° C. Should there be any demand for this oil, abundant quantities could be had at reduced prices.

Oil of Fennel.—East Indian fennel, from *Fœniculum Panmorium* DC., a variety of *Fœniculm vulgare* has recently been examined by Sch. & Co. It was found to contain less essential oil than the German, and its odor was unsuited to the European taste.

Oil of Geranium.—For purposes of perfumery only the fine African oil is used, and, to a slight extent, perhaps, the Spanish oil. The latter, as well as the French, are produced only in small quantities and are principally consumed for scenting snuff.

[The Algerian, Spanish, and French oil of "geranium" are derived from species of Pelargonium, particularly *Pelargonium roseum* Willd.]

So-called *Turkish Oil of Geranium* [derived from *Andropogon Schœnanthus* L., of northern and central India, and also known under the names of rusa oil or oil of ginger, or oil of gingergrass] is misnamed "Turkish," because its importation into Turkey has formerly been monopolized by certain firms in Constantinople. It is very commonly used as an adulterant of oil of roses. Those portions of the import which were not used as an adulterant were put on the market as "Turkish oil of geranium," and only in recent times has the more direct source of the oil been drawn upon. It arrives from India either by direct shipments or by way of Arabia and Egypt. [Incidentally, it may be remarked here, that the native distillers—most of them situated in the Nimar district, which is the most westerly of the Central Provinces of India—adulterate their product more or less. Prof. Dymock has been assured that *all* the commercial oil is more or less adulterated (*Mat. Med. of West India*, p. 687); and a comparison of the commercial product with that distilled by himself confirmed this statement. He was informed that the distillers are regularly supplied with oil of turpentine from Bombay. Flückiger (in *Pharmacognosie des Pflanzenreiches*, 2d ed., p. 157) gives the following account:

This oil, known in Turkey under the name of *idris yaghi* or *entershah*, is brought by Arabic dealers in large flasks to Constantinople and Kazanlik (the district in the Balkans where the best oil of rose is produced). The odor of the oil is quite agreeable, but is improved by shaking the oil with water previously mixed with some lemon juice, whereby any copper present is also removed. The washed oil is then exposed for two or three weeks, in shallow vessels, to the rays of the sun, whereby its odor becomes still more like that of oil of rose. Through this circumstance, as well as through its pale yellowish color, it forms a favorite adulterant for oil of rose, being either added to the latter after distillation, or being sprinkled upon the freshly gathered roses before distillation. Since oil of rose thus adulterated does not separate its crystalline stearopten as easily as while pure, the manipulators prefer for this purpose the oil of rose obtained from the higher situated regions in the Balkans, since this is richer in stearopten, and will stand a larger addition of the oil of geranium. There is no test known to discover the presence of the latter. Flückiger says that it may be assumed to be more or less present in every commercial oil of rose.]

Oil of Ginger.—Has been mostly prepared from African and from Bengal ginger, which were cheapest. Japanese ginger was found less suitable. Samples of this, peeled, were found so inferior in appearance and heavily daubed with chalk, that it is not likely to come into competition with Cochin or Jamaica ginger.

Oil of Hops has been in lively demand, particularly for export (from Germany). The numerous experiments made to find a method of preserving hops for an indefinite period have led to the result that this is only possible by withdrawing its essential oil, since the substance *valerol*, which is contained in hops, is gradually converted into valerianic acid, and ruins its aroma. It is now possible to remove the essential oil without injuring the hops in the least, and foreign (non-German) brewers appear to have adopted the plan of adding a solution of oil of hops to the beer after the brewing process is completed.

There are two varieties of this oil prepared by Sch. & Co., one being made from the original hops (not sulphured), known as oil of hops, and the other from lupulin. 100 parts of lupulin contain about 1% of valerianic acid.

Oil of Lavender.—The French oil of 1885 has turned out to be an exceedingly fine article. The best is that which is distilled in the higher regions of the Piedmontese Alps.

Lavender-camphor has been several times asked for, for scientific purposes. Sch. & Co. have heretofore been unable to separate any, but they promise to continue their experiments.

Oil of Linaloe.—The supply of this article is liable to suffer interruptions, owing to the difficulty of transporting it from the interior of Mexico.

According to Flückiger, linaloe wood was known in Mexico already since the 17th century. According to Collins, it is said to be derived from *Elaphrium graveolens* Kunth. More recently it has been stated that it is from *Amyris Linaloe* (nat. ord. Therebinthaceæ). [A more detailed account will be found in this JOURNAL, 1885, p. 157.]

Oil of Olibanum, possessing the full characteristic odor of olibanum or incense, is now for the first time put on the market by Sch. & Co.

Oil of Orange, Bitter, is regarded as a rarity, and the small stock obtained by Sch. & Co. is not likely to last until the next season.

Oil of Orange, Sweet.—The most renowned quality of this oil—a specific product of Calabria—is that known as "muscat" (nutmeg), and it is this brand which is offered by Sch. & Co.

Oil of Orris.—Though it has been shown by Professor Flückiger that the so-called oil of orris consists chiefly of myristic acid, mixed with a very small quantity of an ethereal oil, to which the odor is due, yet it would not be economical to isolate this oil (though it could be done), as it would probably be the most costly article of commerce. The present form is undoubtedly the only one practicable.

Oil of Peppermint and Menthol.—It is conceded as a fact by Sch. & Co., that menthol is now obtained from American oil of peppermint. At the same time it is regretted that large quantities of dementholized oil of peppermint are now in the market. The business in menthol has recently been quite unsatisfactory, one reason being that the demand for menthol cones appears to be diminishing. A great change has also taken place in the value of menthol. The high price paid for Japanese menthol seems to have brought about a perfect craze for cultivating peppermint in Japan, so that the production has been nearly doubled. It is easy to foresee the consequences. A further unfavorable influence upon the price has been the competition of the menthol prepared from American oil of peppermint. [Regarding the views taken by Sch. & Co. of the new American menthol industry, and the merits or demerits of the American product, we prefer to await further development before venturing to express a decided opinion.]

Sch. & Co. draw attention to the fact that the "*liquid* Japanese oil of peppermint," "extra steam refined," offered by a firm in Yokohama, is unsuitable for confectioners or other similar purposes, owing to its bitter and oily after-taste.

Messrs. Schimmel & Co. have received notice that Dr. E. Beckmann, Privat-Docent at the University of Leipzig, has discovered a process by which the liquid portion of oil of peppermint (menthene) can be converted into menthol. They have received permission by the discoverer to announce this fact, which will certainly revolutionize the whole peppermint industry.

Oil of Pine Needles.—The demand for the ordinary oleum Pini sylvestris is exceeded by that for the more expensive extra-fine quality introduced a few years ago, which is used with preference as the material for the well-known "ozone" sprays. Another similar oil, likewise in active demand, is that obtained from *Pinus Pumilio*, or mountain pine. Opinions are divided as to which variety is the most suitable for the favorite and refreshing toilet or rather hygienic articles known as "Coniferen-Geist" (Pine-Essence), or "Tannenduft" (Pine odor). Some perfumers prefer the oil from the balsam fir (*Abies balsamea*), which has a very pleasant, refreshing odor that may be materially improved by the addition of a small quantity of oil of sweet orange. The finest product of this class, however, is that obtained from the silver fir (*Pinus Picea* or *Abies Picea*), now for the first time introduced by Sch. & Co.

The pine-needle oil obtained from the Canada pine (*Pinus Canadensis*) is also coming more into use.

Oil of Sandal-wood.—The oil prepared in India, being distilled over a naked fire, always has a burned odor, and is unsuited for perfumery. Fine sandal-wood oil is prepared by the European distillers from imported wood.

[E. M. Holmes has recently made a report on so-called "West Indian Oil of Sandal-wood," which is probably derived from a tree belonging to the nat. fam. Rutaceæ. This so-called

West Indian sandal-wood is exported from Venezuela, but its true source is not known, though the wood, in appearance and odor, very much resembles the true sandal-wood.]

Oil of Sassafras and Safrol.—Under Oil of Camphor, the fact of the presence of safrol in the former has already been mentioned. Sch. & Co. appear to be quite justified in advising consumers of sassafras oil to give safrol a trial, in place of the ordinary oil. Safrol is the true aromatic principle of oil of sassafras—an absolutely pure substance, of definite properties. Pure safrol, such as is prepared by Sch. & Co., has the specific gravity 1.108–1.100 (at 15° C.), boils at 232° C. (449.6° F.), and congeals to a firm mass when cooled to —1° C. (30.2° F.). It is colorless, has a fine, pure odor of sassafras, and is likely to displace the natural oil completely.

Oil of Ylang ylang.—[Compare NEW REM., 1881, 98.] Mr. Steck, the predecessor of Sartorius—manufacturer of one of the finest brands of this oil in the Philippine Islands—states that the chief flowering-season of the ylang ylang tree (*Cananga odorata*) falls between March and May. If, however, the trees are prevented from fruiting by removal of many flowers, it continues to produce the latter nearly all the year round. The color of the oil does not depend upon the place of growth of the plant, but only upon the temperature. The colder it is, the lighter colored is the oil, the greater is the yield, and the lighter and thinner is the oil.

The New Non-metallic Element: Germanium.

FROM the report on this new element, by Clemens Winkler, in the *Berichte d. Deutsch. Chem. Ges.*, 1886, 210, we take the following:

During the summer of 1885, there appeared in one of the mines ("Himmelsfürst Fundgrube") of Freiberg a rich silver ore of unusual appearance, in which A. Weisbach recognized a new mineral which he named *argyrodite*. Th. Richter made a preliminary blow-pipe analysis of the mineral, and found in it principally sulphur and silver, besides a small amount of mercury, which metal had previously not been known to occur at Freiberg.

On making a full analysis of the mineral, Winkler found it to contain 73–75 per cent of silver (the variation depending on the purity of the mineral), 17–18 per cent of sulphur, 0.21 per cent of mercury, and minute traces of iron and arsenic. Repeated analyses, however, *showed a deficit* of 6 to 7 per cent, which could not be accounted for by following the usual method of qualitative analysis.

It required weeks of laborious work to convince the author that agyrodite contained a new element, very much resembling antimony, but yet sharply distinct from this. This element has been given the name *germanium*. Its discovery and isolation was very laborious and often doubtful, because the minerals accompanying the agyrodite contained both antimony and arsenic, which have great resemblance to the germanium, and greatly interfere with its isolation, as there are no sharp methods of separation known.

The properties of the new element, so far as they have been studied, show that it belongs to the so-called non-metallic bodies. Further details regarding its properties will be given hereafter, when the researches of the discoverer have been carried out on a more enlarged scale.

"Only a Cold!" was the reply of a patient to a query by Abernethy. "Only a cold;" repeated the renowned doctor; "what the devil would you have, the plague?"

Sandal-Wood.

Fragrant odors are not often centred in the woody fibre of plants, but are more generally confined to the bark, leaves, and flowers. There are, however, some few woods which have an aromatic odor, such as the myall and musk woods of Australia, the cedar, camphor, and especially the sandal-wood. A few details about the latter may be interesting:—There are more than a dozen species of the genus, which are chiefly restricted to Asia, Australia, and Oceanica. The Indian species are *Santalum album* and *S. myrtifolium*. The Australian species are *S. cygnorum*, *S. lanceolatum*, *S. oblongatum*, *S. obtusifolium*, *S. ovatum*, and *S. venosum*. The species found in the Pacific islands are *S. Austro-Caledonium*, Vieill., which is superior to that of most other countries, owing to the strength and fineness of its odor; *S. ellipticum*, *S. Freycinetianum*, *S. paniculatum*, and *S. Yasi*. But many of the species are not well determined, nor their localities clearly defined.

Santalum album, one of the Indian species, has long furnished the chief supply of wood, which is shipped from the Madras Presidency. In Mysore the sandal-wood trees form a Government monopoly, bringing in a revenue of about £40,000, the wood selling there at £35 to £40 a ton.

S. Freycinetianum is imported from Cochin China and the Pacific islands, but it is less esteemed, the color of the wood being paler, and the odor less pronounced.

It is only the central portion of the tree which produces the scented yellow wood constituting the sandal-wood of commerce. The quality of the wood depends on the quantity of the oil contained in it, as indicated by the smell when freshly cut or burnt. The old trees produce the best, and of them that part of the wood near the root is the most prized. The distillation of oil from the roots in India is carried on chiefly at Mangalore. Five cwt. of wood yield about 80 lbs. of pure oil, thus giving a profit of nearly 37 per cent. [On Oil of Sandalwood, see the Report on Essential Oils, elsewhere in this number.—ED. AM. DR.]

At one time the sandal-wood tree was plentiful in Maubhoom, but is now practically extinct, and the same might be expected of the Mysore forests, were it not for the fact that they are under State conservancy. At the best, however, the work of destruction proceeds apace, and it will require careful watch of the authorities to prevent extinction.

The present average annual output in the native State of Mysore is computed at 1,000 tons of heart-wood, yielding an income of about £40,000, and considering that all exterior parts of the sandal-wood tree are inodorous, the destruction of this comparatively small forest plant must be something enormous to produce the quantity of wood mentioned.

The essential oil is used as the basis of nearly all ottos manufactured in the country.

The wood is made into boxes, in which steel does not rust; curiously carved cases, fans, and other fancy articles; and it is also burnt in the temples.

The Mysore wood is divided into five classes. The first three go almost exclusively to China; the hollow fillets and the small broken pieces, which are not included in the five classes, going to Arabia, where they are either burnt whole, for the sake of the fragrant smell afforded, or ground up and used with other ingredients as incense. Of that sent to Surat the inferior descriptions of billets are burnt by the Parsees in their fire temples, and are also used at Hindoo funerals when the friends of the deceased are able to afford it. The wood, rubbed down with water and worked into a paste, is used by all Hindoos in their caste marks, and is also employed as an external application for headaches and some skin diseases. The powder of the roots and of the heart-wood is used by the Chinese against gonorrhœa, and is applied to wounds. They also consider it carminative, stomachic, and stimulant. The oil, which is yellow and of the consistency of castor oil, is much esteemed for its odor.

As opium ministers to the sensual gratification of the Chinese and others of the same class, so sandal-wood ministers to their superstition. Without it no religious ceremony can be conducted, and its absence is a mark of poverty, so that the Oriental of India and China will sacrifice anything rather than allow that, on the proper occasion, sandal-wood should not be burnt. The roots, which are richest in oil, and the chips go to the still, while the Hindoos who can afford it show their wealth and respect for their departed relatives by adding sticks of sandal-wood to the funeral pile. A very large quantity was used up in this way at the cremation of the late Maharaja of Mysore; and also, in 1874, at that of the Hon. Narajah Wassodeo, Minister of the Legislative Council of Bombay.—*Chem. and Drugg.*

Incense and Myrrh.

SEVERAL recent numbers of *Petermann's Mittheilungen* (1886, Nos. 1 and 2) contain an interesting report of the travels of Eduard Glaser from Hodeidâ to Sanâ in Yemen (Southern Arabia), made in the spring of 1885. According to the account given by the author, he appears to have passed through territory heretofore untrodden by non-Mohammedan Europeans. Being thoroughly familiar with the Arabic language, and being provided with Turkish documents which establish his right to visit this territory, he enjoyed facilities superior to those possessed by other travellers in Arabia. It seems, however, that there has been a great unwillingness, on the part of learned orientalists in Europe, to interest themselves in his person or mission. The real cause of this neglect is not known to us, but we presume that he had not previously been known and recognized as a person whose scientific statements and deductions could be fully trusted.

The author, among other interesting matters, describes the coffee district of Harâz, whence the so-called Mokhâ coffee used to be derived. Along with the coffee-shrubs are met with, in all directions, large numbers of plants that would undoubtedly be of great interest to the specialist in botany, as he would probably recognize among them many plants already known to the ancients, among them the myrrh-shrub which occurs here as well as along the whole western slope of the Serât range.

The author announces that in his prospective work on the ancient geography of Yemen, he will give an account of the traffic in *incense*, regarding which he has acquired some very valuable Arabic manuscripts. He has also taken pains to collect seeds of most of the odoriferous plants growing in Yemen, as well as samples of the various gums or gum-resins found there and used as incense ("bukhurât"), such as *lubbân* (or *lubân*, the Arabic term for incense) and *mirr* (that is myrrh). These seeds were to be dispatched by him to Europe as soon as possible—his letters are dated in May, 1885—for the purpose of being planted.

It is, therefore, to be hoped that the botanical origin of myrrh will shortly be definitely settled.

The Cochineal Industry in Guatemala.

The following paragraphs describing a visit to a cochineal range in Guatemala are taken from the Montreal *Daily Star:*

"In this queer country the raising of hemipterous insects of the bark-louse family—especially the coccus cacti or Spanish cochinilla—is a profitable if not a pleasant industry. In this portion of Guatemala vast plantations are given up entirely to the cultivation of the 'Indian fig,' or nopal, of the genus Cacti (*Opuntia cochinilifera*), upon which these bark-lice feed.

"Senor Espanosa's plantation of *Opuntia cochinilifera*, which was the one we visited, includes nearly a thousand acres, and the *modus operandi* of cultivating the insect is most curious. They require about the same care that is ordinarily bestowed upon silkworms, and the occupation is not more disagreeable among crawling bugs than wriggling worms. Immediately before the annual time of violent rains great branches of the nopal, covered with insects, are cut off and stored in a building erected for the purpose, to protect them from the weather. At the close of the wet season, four or five months later—about the middle of October—the plantations are again stocked from these supplies, by suspending little nests made of henequin, maguey, jute, or any sort of woody fibre upon the spines of the growing cacti, each nest containing about a dozen females. Warmed by the tropic sun, the insects soon emerge from their semi-comatose condition, and begin to lay eggs with marvellous rapidity, each female p.oducing more than a thousand young. These spread over the plants with marvellous celerity, the young females attaching themselves to the leaves and immediately swelling to incredible size, adhering so closely to the nopal as to become almost a part of it, resembling vegetable excresences rather than animated creatures.

"In this condition they are gathered for cochineal, none but the pregnant females being valuable for commercial purposes. The males are comparatively few in number—not more than one to two hundred and fifty females—and are of no use for coloring purposes, but, as in the higher orders of existence, escape most of the pains and perils of life. While the males are thus left to disport themselves undisturbed the females are picked off with a blunt knife, collected into baskets and killed by dipping them into boiling water, or baking them in a heated oven, or on plates of hot iron. The first crop is gathered about the middle of December, and subsequently several more of as many successive generations—the last for the year being in May. These tiny insects, of the family Cocidæ, are in the form of rounded scales, the body covered with deep transverse wrinkles, abdomen of dark mulberry color, with short black legs, and bristly on the posterior part. The male has two erect wings, the female none.

"A laborer of ordinary skill can pick only about two ounces of cochineal bugs in a day. These lose at least two-thirds of their weight in the process of drying. As it requires no less than seventy thousand insects to weigh a pound, and the average retail price of cochineal is only sixty cents per pound, it may be inferred that the business is by no means a sinecure. By the method of immersing the insects in boiling water they turn to a reddish-brown hue, losing much of the white powder with which the wrinkles of their bodies are loaded. When dried in an oven they retain this, and then their color is gray, and when killed on hot irons they become black. This is the cause of the varieties known in the market as 'silver grains,' 'black grains,' and 'foxy,' the latter (killed by the first plan) being preferred. When dried, the cochineal presents the form of convex grains, each about an eighth of an inch in diameter, with the transverse wrinkles still visible.

"An inferior quality of insect, called sylvestre, which is indigenous to a wild species of cactus, is frequently gathered and sold for the better variety, and sometimes the species become mixed without design on the part of the planter. Occasionally a bug distemper breaks out and devastates entire plantations, as in Guatemala a few years ago, when the haciendados were obliged to clean out the old stock, root and branch, and begin anew. The coccus cacti are also fed upon by birds, mice, and larvæ—the latter destroyers sucking out their bodies and leaving only the empty skins."

Dialyzed Pitch.

CHARLES J. ULRICI, of Havana, Cuba, has suggested a new mode of purifying pitch for medical purposes. The pitch is first filtered to free it from vegetable substances, earth, root, etc., and the heat employed to liquefy it during this process serves also to expel any volatile substances. Normally, pitch is composed of dense empyreumatic, resinous matters of dark color; and, secondly, of a liquid element which holds the former in solution. The acrid and nauseous odor of raw pitch is due to the presence of pyroligneous acid, formic acid. wood spirit or methylic alcohol, aldehydes, acetones, methylic acetates, creasote, cyanides of ammonia, and benzines; and these substances, by means of bicarbonate of sodium, become capable of removal by dialysis. A dialyzer of parchment paper is placed in distilled water, the level of the water being the same as the level of the liquid in the dialyzer, and the whole is allowed to rest for three days, when the water is changed. The first water is tested with sulphuric acid, and if it effervesces, the process is continued for the same period, when the water is again changed and tested. This changing of the water is repeated until it no longer liberates carbonic acid when treated with sulphuric acid. The dialyzed pitch is then concentrated slowly with the aid of heat and mixed with coarser sand, and the evaporation of water by means of heat is continued. The mass is then cooled and placed in a suitable vessel, where it is treated with a solvent capable of taking up the pitch, *e. g.*, alcohol and glycerin. This fluid extract of pitch is adapted for a variety of medicinal uses, such as the treatment of bronchitis, diseases of the throat, ulcers, diseases of the skin, etc.

The Best Materials for Dialyzers.

SINCE Graham's time it has been generally accepted that thin parchment paper is the best material for a dialyzer. A variety of substances have lately been experimented with by Mr. Zott, of Munich (*Wied. Ann.*, 2), and he pronounces gold-beaters' skin the best; it has always at least twice the separative effect of parchment paper, and sometimes much more. In a list of relative permeability, gold-beaters' skin being valued as 1, we have, next, sow-bladder 0.77, parchment paper 0.5, 2 mm. leather 0.025, and so on to the fifteenth, caoutchouc 0.0001. For solutions which injure organic membranes, common earthenware cells (like those in Grove's battery) are best; but their effect is sixty to seventy-five times less than that of gold-beaters' skin.—*Nature.*

The Assay of Extract of Belladonna

PROF. WYNDHAM DUNSTAN and Mr. Francis Ransom, in a paper on the chemistry of the pharmaceutical preparations of Atropa Belladonna (in *Pharm. Journal.*, March 13th, 1886) give the following process for estimating the amount of *total alkaloids* (atropine and hyoscyamine) in commercial alcoholic extract of belladonna:

"It was necessary to devise an accurate process for the estimation of the total alkaloid, and one which should, if possible, be free from complexity. This we have succeeded in doing by means of a modification of the process which was employed for the same object with the root itself. The method now proposed consists in dissolving about 2 grammes of the extract with a gentle heat in water acidulated with hydrochloric acid. The liquid is filtered, and the residue washed with dilute hydrochloric acid until the washings yield no precipitate with a solution of iodine in potassium iodide. The clear liquid is then rendered alkaline with ammonia, and extracted with chloroform until nothing further is removed. Two separate extractions with half its volume of chloroform are usually sufficient for this purpose. The chloroform is next twice agitated with its own volume of water acidulated with hydrochloric acid. It now only remains to render this liquid alkaline with ammonia, and to twice extract it with half its volume of chloroform. The chloroform, when spontaneously evaporated, yields a residue of the crystalline alkaloids (atropine and hyoscyamine), or when evaporated at 100° C., a residue of fused alkaloids, which should be dried until it has a constant weight. In these experiments, no advantage is gained by evaporating the liquid and drying the residue at a lower temperature, for we have found that a residue so prepared undergoes no appreciable decomposition at the higher temperature of 100° C. That the residue obtained in this way is entirely alkaloidal in its nature was proved by the method of precipitation as "periodide."

[The authors then give the results of analyses of samples of commercial extracts of belladonna, which yielded between 1.65 and 4.45 per cent of total alkaloids, most of them averaging about 3 per cent. An extract was prepared by the authors from a root which assayed 0.3 per cent of alkaloid, by means of strong alcohol. It was found to contain 2.8 per cent of alkaloids. On preparing from it another extract, according to the directions of the new Brit. Ph., the product contained only 1.7 per cent of alkaloids. Hence, to obtain extract of belladonna of uniform alkaloidal strength, the kind and quantity of the menstruum must be exactly determined.]

Extract of belladonna contains, in addition to the alkaloids atropine and hyoscyamine, chrysatropic acid, $C_{12}H_{10}O_5$, probably a naphthalin derivative, which causes alkaline solutions of the extracts to have a distinct fluorescence (Kunz, *Arch. Pharm.* [3], xxiii., 722). It also contains much dextrose, and the authors have recently obtained evidence of the presence of another alkaloid, which is being further investigated.

Withania Somnifera.

WITHANIA SOMNIFERA is a solanaceous plant very common along the shore of the Mediterranean. Dr. Trebut has undertaken to investigate the grounds for its local reputation for hypnotic powers, and has extracted an alkaloid whose sulphate is crystalline, and which has hypnotic action, but does not produce mydriasis. He calls the alkaloid "somniferine."—*Lancet.*

The Volumetric Estimation of Inorganic Nitrites.

MR. G. A. ATKINSON lately read a paper on this subject before the Royal Society of Edinburgh. We give the more importants parts. The author thinks it necessary, not only to use some excess of permanganate, but he advocates a large excess, namely, about twice the required quantity, so as to reduce the chances of error. As will be seen, he prefers Mohr's reagent (ammonio-ferrous sulphate) for estimating the excess of permanganate. We should prefer oxalic acid. He says:

"The standard solutions I would recommend are:

"1. A 1-per-mille of permanganate of potassium, carefully titrated against one of the ordinary substances—metallic iron, ferrous sulphate, etc.

"2. A 12.5-per-mille solution of ammonio-ferrous sulphate, containing an equal amount (12.5 C.c.) of strong sulphuric acid. 1 C.c. of this will approximately decolorize 1 C.c. of the permanganate solution, and the contained acid, while assisting its action, preserves the solution. It must, obviously, whenever used, be carefully standardized against the permanganate—a process occupying only five or ten minutes.

"3. A solution of pure sulphuric acid, 1 in 10, is most convenient, but the pharmacopœial (almost 1 in 12) is suitable enough.

"4. A 1-per-mille-solution of the nitrite, unless it be such a nitrite as nitrite of silver, the base here possessing a high atomic weight, when 2-per-mille may be employed."

Now, as we are dealing with the action of reducing agents on permanganate of potassium, it is important to consider whether or no in such reduction oxygen be given off, as alleged by Jones. I find none with such solutions as I have above described, although with stronger undoubtedly there is. Nor do I find any escape of oxygen when one acidifies the permanganate, unless the solution be boiled; nor do I consider any secondary decomposition occurs between ammonia or ammonium salts, as might be possible from the fact that nitrous acid decomposes ammonia with the evolution of nitrogen.

Finally, in what order should the solutions be added? I have repeatedly experimented in every possible way, and only obtain really satisfactory results by adding the nitrite solution slowly to the acidified permanganate.

As to the details of the method: Into a beaker of about 500 C.c. capacity, about 200 C.c. of distilled water is poured, and then about twice the quantity of permanganate required to oxidize the nitrous acid in 50 C.c. of nitrite solution is run into the same vessel, and followed by 10 C.c. of diluted sulphuric acid (1 in 10), or 12 C.c. of the pharmacopœial solution. Now slowly add 50 C.c. of nitrite solution, the nozzle of the pipette being kept well below the surface and moved round so as to agitate the contents of the beaker. When almost empty the nozzle is brought above the surface and little distilled water run over its exterior to wash off any adhering fluid from the beaker. After two or three minutes the amount of unreduced permanganate is estimated by the ammonium ferrous sulphate solution, the end point being obtained by zigzag titration. The ordinary processes for calculation now give the amount of nitrite.

To test the method, nitrite of silver solution containing in every 50 C.c. .02465 grain of nitrous acid was employed, and in six consecutive estimates I found the quantity indicated varied between .02463 and .02466 grain.—*Pharm. Journ.*, March 20.

Rose Oil in Germany.

MR. JAMES T. DU BOIS, the U. S. Consul in Leipsic, recently wrote as follows to the Department of State: One of the most interesting events in the manufacturing world of Saxony, during the past year was the successful attempt of Schimmel & Co., of Leipsic, to produce at their chemical factory, located in this city, a marketable rose oil, extracted from roses grown on Saxon soil.

Last year an effort was made in a small way, and it resulted in the production of nearly seven pounds of genuine rose oil, and this success incited the firm to further endeavor. Several large florists have been engaged to cultivate a certain amount of roses for next year, and it is expected that many acres of ground now used to produce the prosy bean and cabbage will be devoted to the cultivation of roses for the use of this factory.

It is claimed by Schimmel & Co. that the climate of Saxony is quite as favorable to the abundant and healthful growth of roses as is the climate of the Balkan region, and that the Saxon rose has a perfume as full and rich as its sisters from the more southern climate. It is further asserted that, aside from the delicate and superb perfume of the Saxon rose oil, it possesses an important quality: that of solidifying at + 32° C., while the Turkish oil solidifies at + 20° C. The Turkish oil, however, costs only 700 marks per kilo. At present, while the Saxon oil is priced at 1,500 marks per kilo, yet, as the latter finds a ready market, it is evident that it is of a finer quality than the Turkish production.

During the preceding year about 2,300 kilos of rose oil were produced in the Balkan district, and this year 2,200 kilos is the estimated product, at a value of 1,540,000 marks.

The experiments made by Schimmel & Co. show that the natural centifolia rose (*Rosa canina*) is the one best adapted to the production of rose oil in this climate, and consequently a large amount of this species will be cultivated in the neighborhood of Leipsic during the next season. It seems to be necessary to manipulate the roses immediately after they have been plucked, and for this reason only those grown in the district of Leipsic will be used for the present. The firm believe seriously that there is a great future for the Saxony rose oil, and, as an earnest of their conviction, have extended the facilities of their establishment in order to produce, on a grand scale, rose oil, rose water, rose pomade, and rose extract. From one kilogramme of the Saxon rose oil, the firm produced 300 boxes of fine rose water which were exported to the United States, and sold at a good profit.

The above being facts, the question arises: "If Saxony can produce a flower so well adapted to the production of an article so valuable and so marketable as rose oil, why should not the fertile garden spots of our own land, where the *Rosa canina* grows at the best, be turned into profitable channels, after the manner of Saxony?"

Percentage Strength of Commercial Nitrites.

MR. G. A. ATKINSON, in a recent paper on the estimation of nitrites (*Pharm. Journ.*, March 20th) states that he has found the commercial nitrites generally to contain the following percentages of the absolute nitrate, the rest being other salts.

Commercial Nitrite of		contains about
Potassium	KNO_2	84–86%
Sodium	$NaNO_2$	94–95%
Ammonium, Solut.	NH_4NO_2	12%

FORMULAS.

Prof. Bouchut's Teething-Syrup.

℞ Muriate of Cocaine..... 1 part.
Borate of Sodium..... 1 "
Syrup of Marshmallow..20 parts.
Syrup of Poppies.....10 "

M. Gently rub the gums with the syrup, three times a day.

Formula for an Appetizer.

DR. GUIBOUT, of Paris, recommends the following to stimulate the digestive organs and increase appetite:

Sulphate of Strychnine..0.02 gramme.
Syrup of Mint.....30. grammes.
Distilled Water.....150. "

M. A tablespoonful just before meals.

Carson's Paint.

Croton Oil ..... ℥ ij.
Ether..... ℥ iv.
Comp. Tinct. Iodine..... ℥ x.

Apply with a camel's-hair brush to produce a mild pustular eruption.

For the Nausea of Pregnancy.

Powdered Colombo root,
Powdered Sugar .....āā 15 parts.
Senna Leaves..... 4 "
Boiling Water.....475 "

Infuse. A wineglassful before each meal.

—DR. FORWOOD, in *L'Union Médicale.*

For Water-brash.

Powdered Phosphate of Zinc... .10 parts.
Calcined Magnesia..... ..... 3 "
Powdered Vanilla..... 1 parts.
Mix. A teaspoonful in a wineglassful of water.

—DR. MONIN, in *L'Union Médicale.*

For Hay-fever.

Camphor,
Chloroform .....āā 1 drachm.
Extract of Belladonna. 4 grains.
Bicarbonate of Sodium 20 "
Benzoinated Lard..... 1 ounce.

Rub together the first three, then add the lard, and, lastly, the bicarbonate of sodium.

Apply freely to the nostrils with the little finger. Dr. A. F. Samuels, of Prairie du Chien, Wis., writes to the *N. Y. Med. Journ.* that, after the failure of other remedies, this gave him speedy and permanent relief.

Hair Tonic.

THE following formula is mentioned by the *Popular Science News* as being as good as any of the advertised preparations:

Cologne water..... 2 ozs.
Water of ammonia ..... 1 drachm.
Tincture of Cantharides... 2 drachms.
Oil of Rosemary.....12 drops.

Mix. Apply daily and *wait for results.*

For the Removal of Hair.

PROF. BARTHOLOW, of Philadelphia, recommends the following:

Sulphide of Barium,
Lime.....āā ℥ i.
Powdered Starch.....℥ ij.

Make into a paste with alcohol and apply until some pain is felt, and then remove it. The long-continued use of this often results, he says, in the permanent removal of offending hair.

Removing Nitrate of Silver Stains.

DIP the fingers into a strong solution of chloride of copper. In about a minute the silver will be converted into chloride, and may be washed off with a solution of hyposulphite of sodium.

A Cough Mixture.

A WRITER to the *Med. Press and Circular*—T. S. Dowse—who has tried terebene in asthenic bronchitis, fails to secure any result from its use that he has not already obtained from a mixture which he says is "old as the hills," is a stimulant, expectorant, tonic and diuretic, and he will "back it against all the terebene in existence."

This is the way he loads his shotgun:

℞ Ammonii Carbonatis.....gr. xl.
Spiritus Ætheris Co.....♏ xl.
Spiritus Ætheris Nitrosi.....♏ xl.
Sodii Bicarbonatis.....ʒ i.
Syrupi Tolutani.....ʒ i.
Tr. Nucis Vomicæ.....ʒ ij.
Inf. Cascarillæ vel Serpentariæ vel Senegæ.....ad ʒ viij.

Fiat mistura, de qua cochlearia duo magna secundis vel tertiis horis exhibeantur, sæpius rariusve, prout tussis vehementior vel mitior fuerit.

An Appetizing Tonic, according to Dr. A. Fort (*Union Médicale*) consists of:

Bruised gray Cinchona Bark.25 parts.
Bruised Bitter Orange Peel..5 "
Bruised Calumba Root,
Bruised Gentian Root,
Bruised Rhubarb Root,
Chamomile Flowers...of each 4 "

Percolate first with 300 parts of Cognac, and then with 750 parts of water. Dose, a tablespoonful before each meal, to improve the appetite in anæmic and debilitated persons.—*N. Y. Med. Journal.*

Frosting Brass Work.

BOIL in caustic potash, rinse in clear water, and dip in nitric acid until all oxide is removed; then dry quickly in boxwood sawdust and lacquer while warm. This gives to brass an ornamental finish.

To Render Fabrics Non-inflammable.

FOUR parts of borax and 3 parts of sulphate of magnesia are mixed together just before being used. It is then dissolved in 20 to 30 parts of warm water. After soaking the articles to be treated in this solution they are to be wrung out, and dried, preferably in open air.

Maury's Ointment.

THIS is a preparation somewhat extensively used in the Philadelphia Hospital as an application for sores and ulcers in general, and especially those of a venereal character.

℞ Ointment of Nitrate of Mercury. ʒ i.
Powdered Rhubarb,
Powdered Opium.....āā ʒ ss.
Simple Cerate.....q. s. ad ʒ i.

Triturate the rhubarb and opium together with the cerate, until a perfectly smooth and homogeneous product is obtained. Rub the mercurial ointment with about a fluid drachm of glycerin to remove any granular condition, using a horn or bone spatula, and then mix this with the foregoing. A petrolate can be substituted for the simple cerate of the original formula, if desired.

When fresh, this ointment, if made with a petrolate, is a soft, unctuous, greenish-brown solid which melts readily at the temperature of the skin. Upon exposure to air, its color changes rapidly to a deep brown, but its medicinal properties are not impaired.

The mode of using the ointment is as follows: The part to which it is to be applied must first be poulticed with linseed meal and hot solution of chlorinated soda; after a time the poultice, with any portions of dead tissue, are removed, the skin is dried with care, and the ointment, spread upon lint, is then applied and renewed once during the day, as a rule.

Liquor Ferri Albuminati (Drees).

Solution of Chloride of Iron..1 part.
Egg Albumen.....30 parts.

Mix well; add some hot distilled water; strain; then add cold

Distilled Water to make.....500 parts

Or better: Dilute the albumen with about twice its own volume of water, add the chloride of iron, and, if necessary, heat until a clear solution has been obtained.

The product contains 0.03% of iron. "J. Nr." in *Pharm. Zeit.*, March 31st.

NOTE OF ED. AM. DR.—The solution of chloride of iron of the Germ. Pharm. has the spec. gr. 1.280–1.282, and contains 10% of metallic iron. That of the U. S. Ph. has the spec. gr. 1.405 and contains 13.03% of metallic iron. To make from the latter a solution of the same strength as that of the Germ Pharm. take

Sol. of Chloride of Iron, U.S.P., 77.5 parts.
Distilled Water.....22.5 "

Copying Ink.

THE following formula is given by a correspondent in the *Pharm. Zeit.*:

Extract of Logwood.....100 parts
Lime-Water.....1000 "
Carbolic Acid.....3 "
Hydrochloric Acid.....20 "
Gum arabic.....30 "
Chromate of Potassium..3 "
Water to make.....1800 "

Dissolve the extract of logwood in the lime-water and let it stand uncovered for a few days. Then add the other ingredients, last of all the (yellow) chromate of potassium, and filter. This ink will improve by age, does not mould, and deposits but little sediment.

Dental Preparations.

Dr. H. Schmidt, of Prague recommends the following:

1. Red Tooth-Powder.

Magnesium Carbonate.....75 grs.
Prepared Oystershell.....75 "
Prepared Cuttlefish Bone...300 "
Precipitated Chalk.....300 "
Oil Cinnamon.....10 drops.
Oil Cloves.....10 "
Oil Peppermint.....5 "
Carmine.....q. s.

2. White Tooth-Powder.

Prepared Oystershell.....300 grs.
Precipitated Chalk.....150 "
Pumice Stone, in very fine powder.....150 "
Oil Cinnamon.....10 drops.
Oil Cloves.....10 "
Oil Peppermint.....5 "

3. Mouth-Wash.

Thymol.....60 grs.
Tincture Guaiac.....½ fl. oz.
Staranise, crushed.....300 grs.
Canella, grd.....75 "
Red Cinchona, grd.....75 "
Cloves, powd.....75 "
Spirit of Peppermint (see note)..3 pints.
Cochineal.....75 grs.
Digest 24 hours and filter.

NOTE.—The spirit of peppermint meant in the above formula is not the strong spirit of the U. S. and other Pharmacopœias, but the mild spirit prepared by macerating 9 parts of fresh peppermint with 70 parts of alcohol, adding 15 of water, and then distilling off 70 parts.

4. Toothache-Drops.

Thymol.....8 grs.
Camphor.....45 "
Chloroform.....10 min.
Oil Peppermint.....90 "
Tinct. of Coca.....180 "

—After *Ph. Rundschau* (Prag

An Improved Method for Preparing Mucilage.

ACCORDING to J. Luettke, a superior mucilage is obtained by proceeding as follows:

Put the necessary quantity of gum arabic into a bottle, add a sufficient amount of water of ammonia, and agitate so that the exterior of each lump may be thoroughly washed thereby. Then pour off the ammonia, and wash it all out with water. Now add the requisite amount of water to dissolve the gum.

The resulting mucilage is clear, and keeps well.—*Der Pharmaceut*, No. 1.

Lanolin Ointments.

MESSRS. Jaffé and Darmstaedter, the manufacturers of the new base *lanolin* recently introduced by Liebreich, have published a list of compound ointments made with this substance, from which we select the following. In our opinion, the list contains several which have been incorporated by mistake and without reflection or preceding study, since certain kinds of active medicines must be applied to the skin under such conditions as will render their absorption impossible.

1. Unguentum Belladonnæ.

Extract of Belladonna..10 parts.
Lanolin.....90 "

NOTE.—Lanolin ointments made with extracts must be made without the addition of fat. All ordinary ointments made with it should have a certain proportion of lard or other fat added to them, to prevent their too rapid absorption.

2. "Emplastrum Plumbi simplex."

Lead Plaster.....45 parts.
Lard.....10 "
Lanolin.....45 "

To be heated until the water evaporates. Used in eczema.

[The title appears to be incongruous.]

3. Unguentum Hydrargyri.

Mercury.....50 parts.
Mercurial Ointment (old)..2.5 "
Lanolin.....12.5 "

[Mix them thoroughly by trituration in a mortar, until the mercury is extinguished; then incorporate a mixture of]

Suet.....25 parts.
Lanolin.....87.5 "

[The original formula, as printed on the circular, does not give any directions, and only has the ingredients above given, the two lower being separated by a dash from the three first. The total adds up 177.5 parts. A 50-per-cent ointment may be made by adopting the following proportions:

Mercury.....45 parts.
Mercurial Ointment....10 "
Tincture of Benzoin....4 "

Mix thoroughly until the mercury is extinguished; then add:

Suet.....30 parts.
Lanolin.....15 "

which should have been previously mixed by adding the lanolin to the melted and partly cooled suet.]

4. Unguentum Potassii Iodidi.

Iodide of Potassium....10 parts.
Water.....5 "
Lard.....10 "
Lanolin.....75 "

5. Unguentum Diachylon.

Lead Plaster.....50 parts.
Olive Oil.....20 "
Lanolin.....30 "

Appears hard, but melts on the skin.

6. Unguentum Zinci.

Oxide of Zinc.....10 parts.
Lard.....10 "
Lanolin.....80 "

If this salve is intended to be kept for a long time, it is better to use benzoinated lard.

7. Unguentum Balsami Peruviani.

Balsam of Peru.....10 parts.
Oil of Turpentine.....20 "
Lanolin.....70 "

8. Unguentum Picis Liquidæ.

Tar.....20 parts.
Lanolin.....80 "

9. Unguentum Acidi Salicylici.

Salicylic Acid.....10 parts.
Lard.....20 "
Lanolin.....70 "

10. Hair Pomade.

Butter Cacao.....5 parts.
Lard.....5 "
Tinct. of Benzoin.....3 "
Lanolin.....50 "
Oil of Rose.....q. s.

11. Salve for Chilblains.

Carbolic Acid.....2 parts.
Lanolin.....40 "
Lead Ointment (see form. 12)...40 "
Olive Oil.....20 "
Oil Lavender.....q. s. or about 1.5 "

12. Unguentum Plumbi.

Sol. Subacetate Lead.....8 parts.
Lard.....10 "
Lanolin.....80 "

13. Unguentum Acidi Borici.

Boric Acid.....10 parts.
Lard.....20 "
Lanolin.....70 "

The original list could no doubt be largely extended. For instance, by the addition of working formulæ for:

Unguentum Iodi and of various iodides.
Unguentum Stramonii.
Unguentum Veratrinæ.
Unguentum Camphoræ.
Unguentum Opii.
Unguentum roseatum, etc., etc.

[The title Unguentum should be replaced by one more appropriate to the base. *Lanolimentum*, which has already been proposed by others, seems to be preferable.]

Formulas containing Lanolin.—The following formulas are suggested by Prof. O. Liebreich, of Berlin: (proportions in parts) **1.** Nitrate of silver, 1; lanolin, 9.—**2.** Carbonate of lead, 30; lard, 10; lanolin, 60.—**3.** Lead plaster, 50; olive oil, 20; lanolin, 30. (This salve appears solid, but when applied to the skin it becomes mobile. When used for eczema, the water it contains should be evaporated with the aid of heat.)—**4.** Lead plaster, 1; lanolin, 1.—**5.** Ammoniated mercury, 10; lard, 10; lanolin, 80.—**6.** Mercuric oxide (yellow ?), 10; lanolin, 90 (30% of lard should be added when this is used for the eyelids).—**7.** Solution of subacetate of lead, 8; lard, 10; lanolin, 80.—**8.** Oxide of zinc, 10; lard, 10; lanolin, 80.—**9.** Red sulphide of mercury, 10; lard, 10; lanolin, 80.—**10.** Iodide potassium, 20; water, 10; lard, 20; lanolin, 150.—**11.** Spermaceti, 10; olive oil, 30; lanolin, 40; rose water, 50.—**12.** Iodoform, 10; lard, 10; lanolin, 80.—**13.** Chrysarobin, 10 to 20; lard, 10; lanolin, 80.—**14.** Tar, 20; lanolin, 80.—**15.** Balsam of Peru, 10; oil of turpentine, 20; lanolin, 70.—**16.** Boric acid, 10; lard, 20; lanolin, 70.—**17.** Carbolic acid, 5; lard, 5; lanolin, 90.—**18.** Salicylic acid, 10; lard, 20; lanolin, 70.—**19.** Naphthol, 5; lard, 10; lanolin, 85.—**20.** Lanolin, 50; lard, 5; oil of rose, 3 *grains*. [See editorial note on the uses of lanolin on p. 90.]

CORRESPONDENCE.

"McDade's Succus Alterans."

MR. D. S. WHITE, of Flandreau, Dakota Territory, sends us the following formula, in answer to a correspondent:

Fluid Ext. Sarsaparilla,
" " Stillingia,
" " Burdock,
" " Poke-root.....āā ℥ ij.
Tincture of Prickly Ash.....℥ i.
Aromatic Elixir, enough to make...℥ xvi.

W. WALTMAN, M.D., of Canaan, Wayne Co., Ohio, supplies this formula:

℞ Fl. Ext. Sarsaparilla,
" Ext. Stillingia Sylvatica,
" Ext. Lappa minor,
" Ext. Xanthoxylum Carolinianum,.....āā ℥ iv.
M.

"Ely's Cream Balm."

WE are indebted to MR. D. S. WHITE, of Flandreau, Dakota Territory, for the following:

White Wax.....60 parts.
Paraffin.....30 "
Oil of Sweet Almonds..120 "
"Saxoline".....240 "

Melt the above together and then stir well until cold.

Nitrate of Sodium.....30 parts.
Water.....30 "

Dissolve in a mortar and then mix the above salve with it thoroughly; then add:

Oil of Lemon.....10 parts.
Oil of Orange.....2 "

H. & W. K., of Berrien Springs, Mich., kindly send a formula for the same article, which is essentially different in its ingredients from the foregoing:

Carbonate of Bismuth.....gr. xv.
Thymol.....gr. iij.
Oil of Wintergreen.....♏ij.
" Vaseline".....℥ i.

Tartrazin is the name of the sodium salt of a newly discovered sulphonic acid, belonging to the aromatic series, which was discovered in the laboratory of Binschedler in Basel, and is the representative of a new series of new coal-tar colors of great importance. It is one of the few artificial colors which can dye wool or other animal fibre a fast color. Its specific color is yellow, but derivatives of it will no doubt be prepared of other tints.

Danger of Abbreviations in Prescriptions is pointedly shown in an item in the *Lancet* taken from a Russian journal. A Polish physician, wishing a patient to be dry-cupped in eighteen places, wrote the order with the number "18" followed by the letter "b," to stand for the Polish word for cups; this, again, was followed by the word meaning dry. The dresser, mistaking the "b" for 6, actually dry-cupped the unfortunate victim in 186 places. As the Russian journal remarks, it is well that it was not wet cupping that was ordered.—*N. Y. Med. Journal.*

Polygonum aviculare was recommended at a late congress of Russian physicians by Dr. Roschtschinin, of St. Petersburg, as a remedy in bronchial catarrh and asthma. According to Werner, the plant contains considerable quantities of an alkaloid. A glassful of an infusion of 6 drachms to the quart may be taken thrice daily with milk, kefir, or sweetened water. Chronic bronchial catarrhs were said to disappear in from 10 to 30 days. It was also serviceable in whooping-cough, but useless as a remedy in phthisis.—*Med. Press.*

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.

No. 1,703.—**Ink for Type-Writer Ribbons.**

We have had inquiries about the best kind of ink to be used in typewriter ribbons, and, as we have no experience on this subject ourselves, we have applied to a better source of information. The communication on p. 81 has been kindly placed at our disposal by the author.

No. 1,704.—**Magnesium, metal** (O. J.).

Metallic magnesium is now made on the large scale by electrolysis, and, in consequence thereof, the price has very considerably declined. The Chemische Fabrik auf Aktien (formerly E. Schering), of Berlin, produce it in large quantities, and you may obtain information as to price, etc., by applying to them.

No. 1,705.—**Acetico-Tartrate of Aluminium** (N. N.).

In 1881, Julius Athenstaedt, of Bremen, published a paper on certain double salts of aluminium (*Pharm. Zeit.*, 1881, No. 93, p. 694), namely, the aceto-tartrate, aceto-citrate, and aceto-lactate. He did not, however, state the method of their preparation. The *Deutsche Medicinische Wochenschrift* of June 4th, 1885 (vol. xi., No. 23, p. 390) contained a paper by Dr. Max Schaeffer, of Bremen—the contents of which were alluded to in our March number, page 51, but where the name Altenstart should be changed to Athenstaedt—in which the use of several of these compounds is highly extolled. This paper is preceded by a letter from J. Athenstaedt, in which the latter draws attention to the special compounds discovered by him and experimented with by Dr. Schaeffer, namely, the *aceto-tartrate* and the *glycero-acetate of aluminium*. But even here the method of preparation is not given. We have ascertained since then that the processes have been patented, and this sufficiently accounts for the absence of any mode of preparation in the papers above referred to. While it is not likely that these compounds will, under the circumstances, be much used in legitimate practice, we are bound to give our readers the desired information, so far as we are able. It is reported that the *aceto-tartrate of aluminium* is prepared from the two-thirds basic acetate (to be described next) by dissolving the latter in a sufficient quantity of tartaric acid solution, and then evaporating to dryness, or precipitating with alcohol, either of which will produce about the same result, as has been ascertained by analysis.

The *acetate of aluminium* mentioned above has the composition $Al_2(C_2H_3O_2)_4.H_2O$, and may be prepared by making a concentrated solution of aluminium acetate (from hydrated alumina and acetic acid) and adding to it, under constant stirring, and at a temperature of 30°–35° C. (86°–95° F.) a sufficient quantity of sulphate of sodium in coarse powder. The separation of the two-thirds basic acetate takes place because this is insoluble in a concentrated solution of sulphate of sodium. The compound, however, soon becomes crystalline and insoluble, and in this form it is sold in the market, and is used in dyeing. It may be rendered soluble by the addition of some acetic acid.

The *aceto-tartrate* of aluminium is in form of shining lumps, resembling gum arabic, having the odor of acetic

acid and a sweet, astringent taste. It is soluble in 1 part (and even less) of cold water, but insoluble in alcohol, ether, and in glycerin [? ED. AM. DR.].—

Another compound recently described by Athenstaedt is the *glycero-acetate* of aluminium, which is a white, somewhat hygroscopic powder, of a weaker odor and taste than the preceding.

Both of the above compounds are decomposed by heat.

As to the glycero-acetate, it has long been known that glycerin has the power of preventing the transition of amorphous and soluble acetate of aluminium into the crystalline and insoluble modification. A formula for preparing it is given by Hager:

100 parts of potash alum and 8 parts of dry aluminium hydrate (the latter previously triturated with a little of the potash alum) are mixed in a flask with 160 parts of water and heated to boiling with occasional agitation. The liquid is allowed to become perfectly cold (being occasionally shaken), and 84 parts of crystallized acetate of sodium in coarse powder then added. After standing a few hours, and having been frequently shaken, small portions of 90-per-cent alcohol are gradually added until the total weight amounts to 620 parts. After allowing it to stand for several hours in a cold place, the mixture is strained through a linen cloth, the strainer pressed out and the strained liquid filtered in a covered funnel. The filtrate amounts to 410 to 420 parts, and contains 10 per cent of anhydrous "two-thirds acetate of aluminium." This liquid is now mixed with 20 parts of diluted acetic acid (1.040 sp. gr.) and enough glycerin to bring its weight to 500 parts. Thus diluted it contains 8 per cent of the anhydrous acetate. It must be preserved in a cool place.

No. 1,706.—Indelible Ink for Labels (Eo.).

Richmond has recommended the following two varieties of ink which are suitable for labels, are not affected by acids and do not corrode the pens:

1. *Blue.*

Ferrocyanide Potassium	3 parts.
Stronger Water of Ammonia....	2 "
Tartaric acid.....	2 "
Water.... 240	"

Dissolve and filter. Then add

Citrate of Iron and Ammonium.	160 parts.
Water of Ammonia.....	40 "
Aniline Blue.....	8 "
Gum Arabic.	70 "

This ink is at first yellow to purple, afterwards blue.

2. *Black.*

Add to the preceding:

Pyrogallic Acid.	20 parts.

This imparts to it first a brown color, and afterwards renders it black.

We have not tried these formulæ, and, therefore, cannot say how they turn out in practice.

Another new formula is given by the *Südd. Apoth. Zeit.*, as follows:

Nitrate Silver	20 parts.
Water Ammonia.....	50 "

Dissolve, and add:

Gum Arabic.....	10 "
Sugar..... ...	5 "
Bitartrate Potassium ...	10 "
Caustic Soda	10 "

Finally, add a well-triturated mixture of

Lampblack.	1 part.
Water.....	50 parts.

No. 1,707.—Naphthalin for Internal Medication (E. W.).

Naphthalin has been used with success by Prof. Rossbach in quantities up to 5 Gm. (75 grains) per day, in acute and chronic diseases of the intestines, in infantile diarrhœa, the first stages of typhoid fever, tuberculous diseases of the intestines, etc. Other physicians report equally favorable results in these diseases, and ascribe its beneficial effects to its aseptic action, which is mostly exerted while it passes through the intestines, since it is so little soluble that not more than traces of it are probably absorbed while in the stomach, nor is much of it probably absorbed while it passes through the intestines.

No. 1,708.—Drawing out Glass tubes (D. E. S.).

This correspondent sends us a sketch of a glass-tube which he wants to use for a condenser. He desires to have it slowly taper off at one end to a small caliber, and also to slightly curve it. It is evidently a large-size tube which our correspondent wishes to reduce in this manner; and he has probably tried the experiment already, and failed.

When a glass tube is heated at any place uniformly about its whole circumference, until the glass begins to be soft, and the tube is then withdrawn from the flame, and gentle traction made at both ends, the tube will lengthen out at the softened spot. The extension will taper off from either side towards the middle (where the glass was hottest), and this tapering portion will be the longer, the larger a portion of the glass had been exposed to the flame. As it is impossible to heat more than a few inches properly with the ordinary burners, and the common burner, besides, does not give enough heat in a short time, it is either necessary to use several burners, or preferably blast-flames, revolving the tube constantly, or, the tube may be pushed through a muffle furnace, or heated on a blacksmith's forge, care being taken that the fire is clean, that the tube be heated slowly and uniformly, that it be kept in a straight line, and, that no traction is made until it has been removed from the fire. It is impossible to give such directions, in print, as will insure success, without corresponding experience. Our correspondent may, therefore, utilize our suggestions and try his skill. When the tube is once properly drawn out, which may be done so that either portion will serve the same purpose, and the two parts have been severed by a file, the tapering portion of each tube may be curved by heating it once more.

No. 1,709.—Liquid Blueing (D. C. W.).

The best liquid blue is prepared from indigo-carmine, by converting the latter into a soluble salt and mixing it with water, or by mixing it with water as it is.

Place 8 parts of the strongest commercial sulphuric acid (or 5 parts of fuming Nordhausen sulphuric acid) into a stoneware vessel, standing in a tub of cold water, and add to the acid, gradually, 1 part of best indigo reduced to a very fine powder. Stir the mixture frequently with a glass-rod and do not allow it to become too hot, by the too rapid addition of indigo. In about forty-eight hours the mixture will have changed to a very dark-blue pasty mass. In this form it is known as "indigo composition" or "chemic blue" (chemisch blau). When diluted with about twice its weight of pure water it forms the ordinary liquid blue of the shops. As this liquid is very acid, it is often replaced by a modification in which part of the acid is neutralized by an alkali.

Taking the quantity of sulphate of indigo (or sulphindigotic acid) obtained from the formula before given, it is diluted with about twelve times its weight of pure water, and about two-thirds saturated with potassa. The sulphindigotate of potassium then falls down as a dark-blue, coppery-looking powder, soluble in 140 parts of cold, and about 90 parts of boiling water. This is sold both moist and dry, and is known as "indigo paste, soluble indigo, blue carmine, soluble blue, etc." It forms the best liquid blue. In place of potassa, soda or ammonia may be used.

Liquid blue may also be made by suspending fine blue in water. Of course, this is not as salable as the other, but it will often answer the same purpose. The finest blue ultramarine, when thoroughly mixed with water, forms an excellent blueing.

No. 1,710.—Egg Albumen (J. S.).

Egg albumen, as sold in the market, is the white of egg, dried. It occurs in irregular scales, of a yellowish or yellow color, and sells at about fifty cents per pound. A large proportion of that sold here comes from abroad; most of it, as we are told, from Russia, where there are large establishments engaged in the breeding and keeping of fowl.

There are varieties in the market which are to be had at so low a price that it is justifiable to suppose them to be mixtures of blood- and egg-albumen. Still, even these cheap samples which we have seen have a very good appearance and not unpleasant odor.

A good sample of albumen should be soluble, within twenty-four hours, in 80 parts of lukewarm water, forming a viscid, almost or entirely colorless liquid, which should not be too turbid. When heated to boiling, all the albumen contained in the solution will coagulate. The liquid, separated from the coagulum, when evaporated, should not amount to more than 5 per cent of the original weight of the albumen employed. If more is left behind, adulterations (dextrin, gum arabic, gluten, etc., etc.), may be looked for.

Pyridine, the colorless and strong-scented liquid obtained from certain organic bodies by dry distillation (see AM. DRUGGIST, March, p. 58) is thought to be the serviceable agent in most asthma-cigarettes. To employ it in asthma, four or five grammes are to be poured on a plate, and placed in a small room in which the patient is to remain for 20 to 30 minutes, three times a day. It is said that the inhalations cause no disturbance of general health.

Hydriodic Acid is growing in favor as a remedy for asthma. A syrup containing 1 per cent of the acid may be taken in doses of ʒss. to ʒi., although doses of ʒi. are usually quite sufficient. It should be well diluted, and when liable to cause eructations of gas or disturbance of the stomach during digestion, should be taken before meals and repeated three or four times daily.

THE University of Basle possesses a skeleton prepared by Vesalius and bearing the date 1543. It is believed to be the oldest anatomical preparation known to exist.

DR. DUBOIS, a Frenchman, has made a number of experiments upon the ability of dogs to assimilate vaseline. Two dogs were fed exclusively on soup in which the usual fat was replaced with vaseline, one taking 15 and the other 25 grammes in ten days. Their general condition remained good; there was no loss of appetite, diarrhœa, nor vomiting, and they increased slightly in weight.—*Nature.*

HENRI CONDREAU, writing of the Napè Indians, of the Amazon region, says that they make use of a poison against enemies, which is extracted from a species of *Arum* and which, in small doses, produces death by anæmia and innutrition after a month or two; strong doses produce immediate insanity.—*Science.*